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*Serket* (2022) vol. 18(4): 421-427.

## **A new subgenus and species of *Leiurus* Ehrenberg, 1828 from Iraq (Scorpiones: Buthidae)**

Wilson R. Lourenço

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### **Abstract**

A new species of buthid scorpion belonging to the genus *Leiurus* Ehrenberg is described based on one female collected in the Al-Anbâr Province in Iraq. Since the early 2000s, the genus *Leiurus* Ehrenberg, 1828 (family Buthidae) started to be the subject of several new studies. Some of the populations previously considered as subspecies were raised to the rank of species, but also many new species have been described. Nevertheless, although the important number of modifications brought to the composition of the genus *Leiurus*, no attempt was done to divide it in sub generic units. The study of an atypical new species of *Leiurus* from Iraq, suggests the creation of a new subgenus to accommodate it. Further investigations should bring more precise conclusions about the status of this particular population. The type locality of the new species represents the first confirmed record of the genus *Leiurus* for Iraq.

**Keywords:** Scorpion, *Leiurus*, new subgenus and species, Iraq.

### **Introduction**

In the last twenty years, most aspects concerning the history and taxonomic evolution of the genus *Leiurus* Ehrenberg, 1828 were largely discussed (Lourenço, 2019, 2020; Lourenço *et al.*, 2002, 2006, 2018; Lourenço & El-Hennawy, 2021; Lourenço & Rossi, 2016) and consequently will not be further treated here.

The presence of the genus *Leiurus* in Iraq was indicated by Fet & Lowe (2000) in the catalog of the scorpions of the world. However, this record was not subsequently confirmed, even in the rather exhaustive contribution of Lowe *et al.* (2014) which



covered essentially the populations of the Arabian Peninsula. More recently, the presence of the genus was, however confirmed to Kuwait (Lourenço, 2020).

In this contribution, a new species of *Leiurus* is described from Iraq, representing the first clear record of this genus for this country. However, the new species shows characteristics which associated it both to the genera *Leiurus* Ehrenberg and *Buthus* Leach bringing therefore some incertitude concerning its precise taxonomic position. Nevertheless, the presence of five carinae on tergites I and II, although inconspicuous, led at present to the proposition of a new subgenus of *Leiurus* to accommodate the new species. Naturally, further investigations will be most welcome to bring a more precise issue about the taxonomic status of this particular population.

## Methods

Illustrations and measurements were obtained using a Wild M5 stereo-microscope with a drawing tube and ocular micrometer. Measurements follow Stahnke (1970) and are given in mm. Trichobothrial notations follow Vachon (1974) and morphological terminology mostly follows Vachon (1952) and Hjelle (1990).

## Taxonomic comments

During his studies on North African scorpions, synthesized in his important monograph, Vachon (1952) divided the genus *Buthus* with the creation of several new genera. Several species previously included in *Buthus* were then transferred to these genera. Some genera in particular presented a number of morphological similarities including *Buthus*, *Mesobuthus*, and *Hottentotta*. Vachon (1952) defined a dichotomy between *Buthus* vs *Mesobuthus* and *Hottentotta* mainly based on the number of accessory granules next to the terminal denticle of the chelal movable finger of pedipalps; three in *Buthus* and four in both *Mesobuthus* and *Hottentotta*; he also revalidated the genus *Leiurus* often assimilated to the genus *Androctonus* Ehrenberg (Figs. 1A-1D). The used dichotomy based on the number of accessory granules of the movable fingers, was subsequently maintained by other authors (Sissom, 1990).

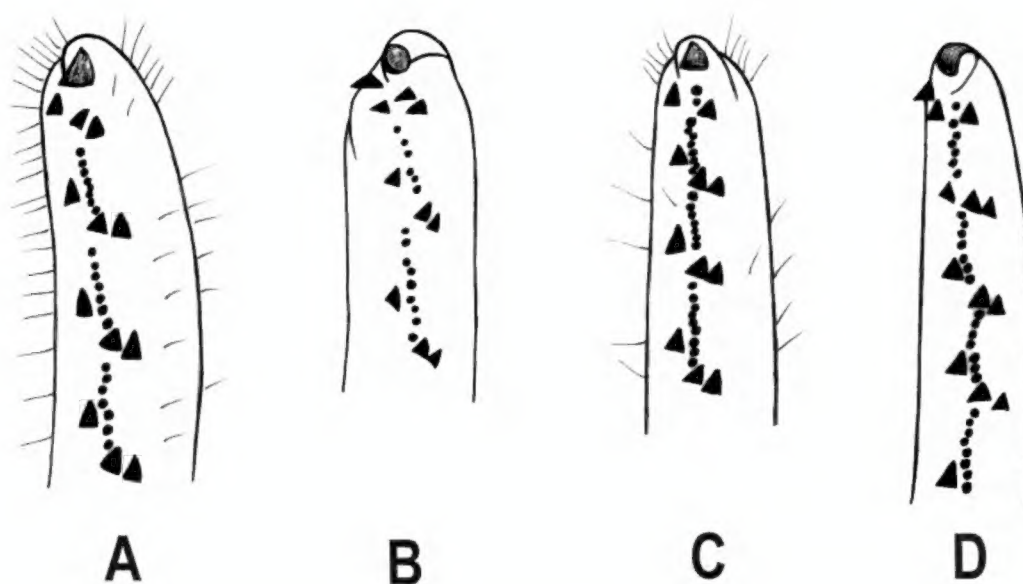


Fig. 1. Distal end of Chela movable fingers with the characteristic number of accessory granules next to the terminal denticle: A. *Buthus parisi* from Algeria. B. *Mesobuthus* (now *Aegaeobuthus*) *nigrocinctus* from Jordan. C. *Buthus amri* from Jordan. D. *Leiurus* (*Iraqioleiurus*) *maculatus* sp. n.



The study of the new *Leiurus* species from Iraq, also partially associated with the genus *Buthus*, revealed, however, a more complex configuration for the number of accessory granules, with three accessory granules next to the terminal denticle and the presence of one diminutive granule in between the accessory granules. The presence of other characters however, plead in favour of its association to the genus *Leiurus* with however the presence of some characters which are more typical of the genus *Buthus*. Based on these particularities (see diagnosis) a new subgenus is now proposed to accommodate the new species.

Family **Buthidae** C.L. Koch, 1837  
Genus *Leiurus* Ehrenberg, 1828  
Subgenus *Iraquioleiurus* subgen. n.

**Diagnosis:** Scorpion of moderate to small size; the pre-adult female having around 50 mm in total length; consequently, one can expect adults with 60 to 65 mm in length. Carinae and granulations generally moderately to weakly marked. Carapace showing weak carinae with an inconspicuous lyre configuration. Five inconspicuous carinae are present on tergites I and II and the typical spinoid process extending beyond the posterior margins of carapace and tergites is particularly weak. This character being generally conspicuous in juveniles of other *Leiurus* species. Distal end of Chela movable finger with two or three accessory granules next to the terminal denticle and the presence of one or two diminutive granules in between the accessory granules. Other characteristics are more similar to those of the genus *Buthus*, such as pedipalps and chela rather short; ventral carinae on metasomal segments II and III with strongly marked spinoid granules; metasomal segment V with latero-ventral carinae strongly crenulated and with marked lobate denticles.

The subgeneric name associates *Leiurus* with Iraqia, Latin form of Iraq.

**Type species:** *Leiurus (Iraquioleiurus) maculatus* sp. n. (Figs. 1D-10)

Iraq, Al-Anbâr Province, SW Ar-Rutbah, near to the border with Jordan, in Plateau, IV/1979 (P.M. Brignoli leg.). Holotype female deposited in Muséum national d'Histoire naturelle, Paris.

**Etymology:** The specific name refers to the very intense pigmentation (maculation) of the new species.

**Diagnosis:** As for the subgenus but with the following other characters. General colouration yellow to pale yellow; carapace strongly spotted; confluent dark stripes over tergites; legs and pedipalps pale yellow without spots. Fixed and movable fingers with 10-11 rows of granules. Pectines small and with 32-33 teeth in female holotype. Tibial and pedal spurs moderately to weakly developed.

Description based on female holotype. Measurements of holotype after the description.

**Colouration** basically yellow to pale-yellow. Prosoma: Carapace yellow but conspicuously spotted; carinae and eyes marked by dark pigment. Mesosoma yellow with dark confluent stripes. Metasomal segments I to IV yellow with blackish spots over ventral carinae; segment V almost totally blackish; vesicle yellow without lateral stripes; aculeus yellowish at its base and reddish at its extremity. Venter yellow; pectines pale yellow. Chelicerae yellowish without any spots; fingers yellow with blackish teeth.



Pedipalps yellow without any spots; fingers with the oblique rows of granules reddish. Legs pale yellow without any spots.

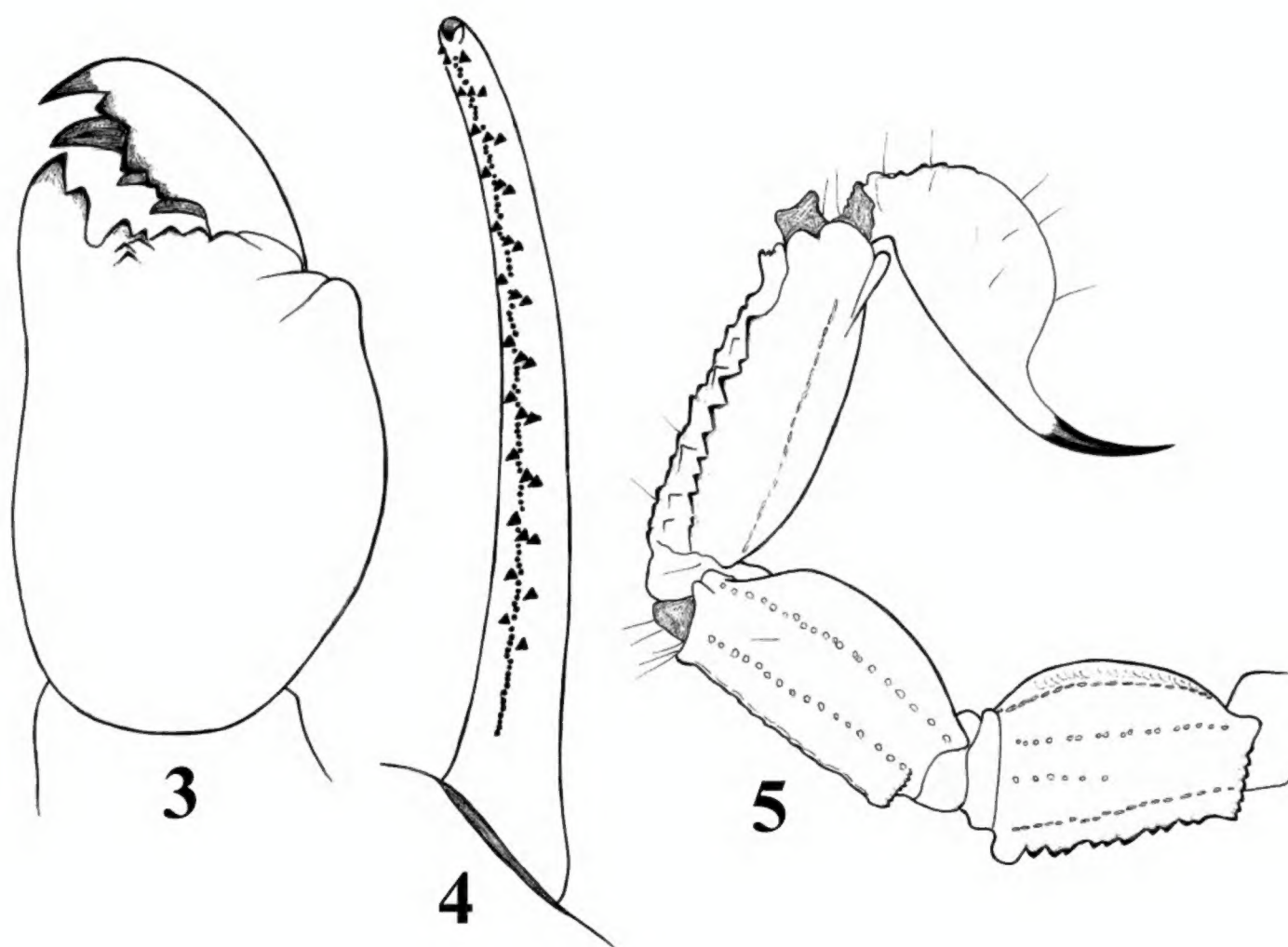


Fig. 2. *Leiurus (Iraqioleiurus) maculatus* sp. n., female holotype. A-B. Habitus, dorsal and ventral aspects.

**Morphology.** Carapace moderately to weakly granular; anterior margin with a weak concavity, almost straight. Carinae moderately to weakly marked; anterior median, central median, and posterior median carinae moderately to weakly granular, with a weakly marked 'lyre' configuration; posterior median carinae weak terminating distally in an inconspicuous spinoid process extending very slightly beyond the posterior margin of the carapace. All furrows moderate to weak. Median ocular tubercle precisely in the centre of carapace. Eyes separated by two and half ocular diameters. Three pairs of lateral eyes of moderate size in relation to median eyes; one fourth vestigial pair is located just behind the third pair. Sternum triangular, slightly narrowed and as long as wide. Mesosoma: tergites moderately to weakly granular. Three longitudinal carinae moderately crenulate in tergites III-VII; lateral carinae reduced in tergites I and II; each carinae terminating distally in an inconspicuous spinoid process extending very slightly beyond the posterior margin of the carapace. Tergite VII pentacarinat. Venter: genital operculum divided longitudinally, which plate with a semi-oval shape. Pectines: pectinal tooth count 32-33 in female holotype; middle basal lamella of the pectines not dilated. Sternites without granules, smooth with elongated spiracles; four weak carinae on sternite VII; two vestigial carinae on VI; other sternites almost acarinated and with two vestigial furrows. Metasomal segments with a weak to moderate setation; segments I to III with ten moderately to weakly crenulated carinae; intermediate carinae incomplete on segments II and III; ventral carinae strongly marked on II-III with some lobate granules;



segment IV with eight carinae, moderately to weakly crenulated; the first four segments with a smooth dorsal depression; segment V with five carinae; the latero-ventral carinae strongly crenulate with 2-3 lobate denticles; ventral median carina divided posteriorly over  $\frac{1}{4}$  of the segment length; anal arc composed of 6-7 ventral teeth, and two strongly marked lateral lobes. Intercarinal spaces weakly granular. Telson smooth; aculeus weakly curved and slightly shorter than the vesicle, without a subaculear tubercle. Cheliceral dentition as defined by Vachon (1963) for the family Buthidae; external distal and internal distal teeth approximately the same length; basal teeth on movable finger small to moderate and not fused; ventral aspect of both fingers and manus covered with long dense setae. Pedipalps with a weak setation; femur pentacarinat; patella with 6/7 carinae, moderately to weakly marked; all faces weakly granular to smooth; chela smooth, with vestigial carinae. Fixed and movable fingers with 10-11 oblique rows of granules. Internal and external accessory granules present, moderately strong; three accessory granules next to the terminal denticle and the presence of one diminutive granule in between the accessory granules. Legs: tarsus with two longitudinal rows of short setae ventrally; tibial spurs moderate to strong on legs III and IV; pedal spurs moderate on legs I to IV. Trichobothriotaxy: trichobothrial pattern of Type A, orthobothriotaxic as defined by Vachon (1974). Dorsal trichobothria of femur arranged in  $\beta$  (beta) configuration (Vachon, 1975).

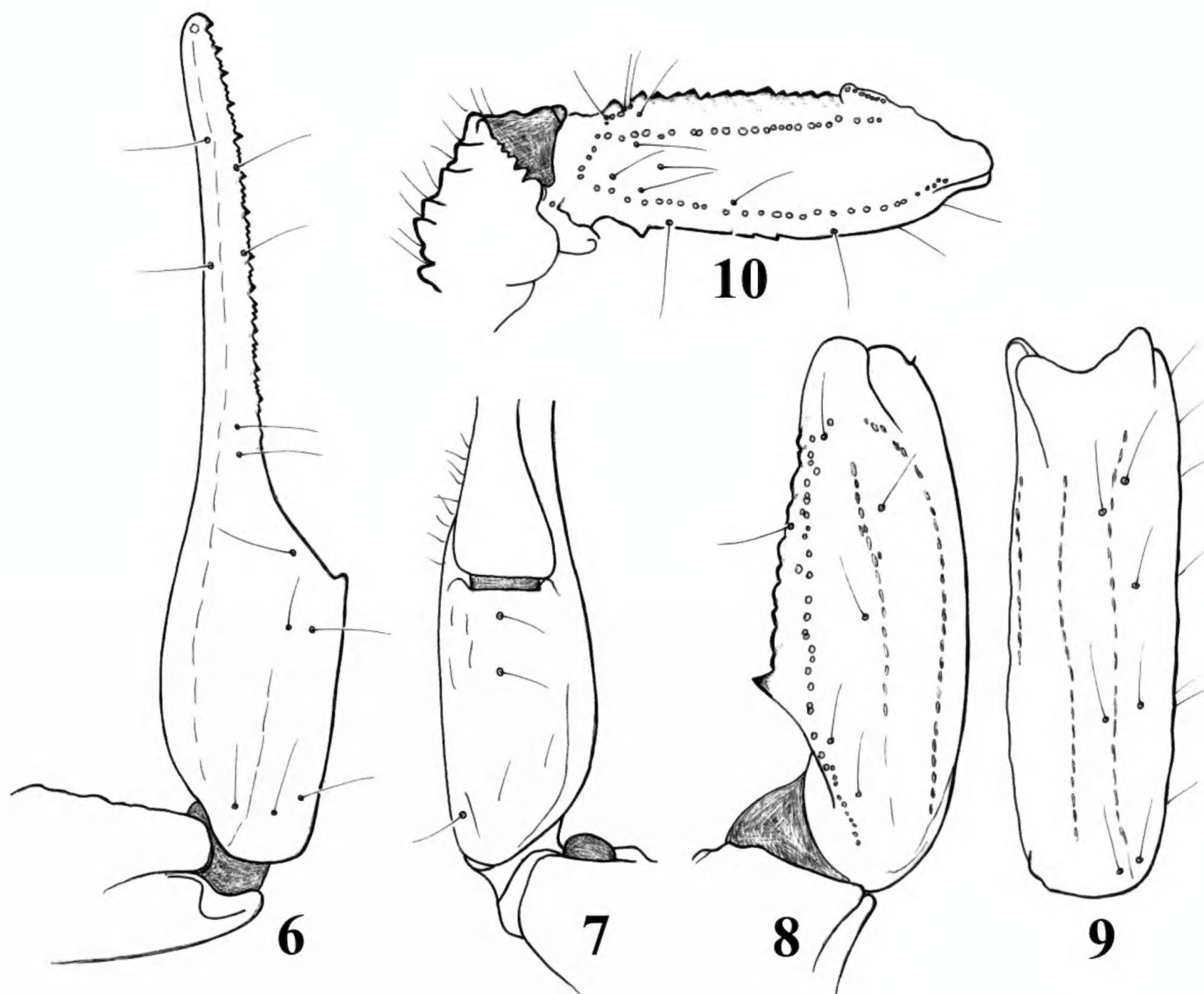


Figs. 3-5. *Leiurus (Iraqioleiurus) maculatus* sp. n., female holotype. 3. Chelicera, dorsal aspect. 4. Cutting edge of movable finger with rows of granules. 5. Metasomal segments III-V and telson, lateral aspect.

**Morphometric values** of the female holotype of *Leiurus (Iraqioleiurus) maculatus* sp. n. Total length including the telson, 48.3. Carapace: length 5.2; anterior width 3.8; posterior width 6.5. Mesosoma length: 14.1. Metasomal segments. I: length 3.5, width 3.3; II: length 3.9, width 2.9; III: length 4.2, width 2.9; IV: length 4.7, width 2.8; V: length, 6.2, width 2.8, depth 2.3. Telson length 6.5; vesicle: width 2.5, depth 2.3.



Pedipalp: femur length 4.6, width 1.6; patella length 5.6, width 2.2; chela length 8.7, width 1.5, depth 1.7. Movable finger length 6.1.



Figs. 6-10. *Leiurus (Iraqioleiurus) maculatus* sp. n., female holotype. Trichobothrial pattern. 6-7. Chela, dorso-external and ventral aspects. 8-9. Patella, dorsal and external aspects. 10. Femur, dorsal aspect.

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I am most grateful to Miss Elise-Anne Leguin, Museum (Paris) for the preparation of the photos of the new species.

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***Leiurus (Iraqioleiurus) maculatus* Lourenço, 2022**

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**A new species of *Androctonus* Ehrenberg, 1828 from the North  
East portion of the Tibesti Massif in Libya  
(Scorpiones: Buthidae)**

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**Abstract**

A further new species of scorpion belonging to the genus *Androctonus* Ehrenberg, 1828 (Family Buthidae C.L. Koch, 1837), is described on the basis of one male specimen collected in the NE range of the Tibesti Mountains in Libya. This is the first record of the genus *Androctonus* for the Tibesti Massif and the new species most certainly corresponds to an endemic element to this mountain range. As in previous studied cases, these Saharan Massifs prove to be very important endemic centres within the Sahara desert.

**Keywords:** Scorpion, *Androctonus*, new species, Saharan Massifs, Tibesti, Libya.

**Introduction**

In several previous publications the taxonomical complexity of the genus *Androctonus* Ehrenberg, 1828 was already outlined, attesting that this genus remained complex and confused during several decades (e.g. Lourenço, 2005, 2008, 2015; Lourenço *et al.*, 2009, 2012, 2015; Ythier & Lourenço, 2022). Previously, Vachon (1948, 1952), in his contributions to the knowledge of North African scorpions, attempted to bring a more clear definition to the genus *Androctonus* and the known species composing it. His results, however, remained somewhat unsatisfactory, mainly because based on the study of a limited zone in North Africa. More than fifty years later, Lourenço (2005) attempted again to characterize the distinct populations of *Androctonus*. A few species



have been synonymised, some subspecies were risen to the rank of species and new species were described. After the publication of this preliminary clarification on the taxonomy of *Androctonus*, more new species have been added to the genus (e.g. Lourenço, 2008, 2015; Lourenço & Qi, 2006, 2007; Lourenço *et al.*, 2009, 2012, 2015). A recent synopsis is also proposed by Ythier & Lourenço (2022). In this synopsis one species was neglected: *Androctonus bartolozzii* Rossi & Merendino, 2016. This omission is corrected here (Appendix 1).



Figs. 1-4. *Androctonus tibesti* sp. n., male holotype. 1-2. Dorsal and ventral aspects of prosoma, mesosoma and right pedipalp. 3-4. Metasomal segments and telson, showing both lateral aspects.

Among the *Androctonus* species some are clearly very common, such as *Androctonus australis* (Linnaeus, 1758), *Androctonus amoreuxi* (Audouin, 1825) and *Androctonus aeneas* C.L. Koch, 1839, while others are rare. Contrarily to the common species, generally largely distributed in wide desert and arid zones of the Sahara and Middle East, the uncommon species are present in most cases in endemic patterns of distribution generally limited to small geographic zones which can correspond to the Saharan Massifs. Examples are those of *Androctonus hoggarensis* (Pallary, 1929) described from the Hoggar Mountains in Algeria, *Androctonus pallidus* Lourenço, Duhem & Cloudsley-Thompson, 2012 described from the Kapka Massif in Chad or yet *Androctonus santi* Lourenço, 2015 described from the Aïr Mountains in Niger. Consequently, some of the species of the Saharan realm are clearly endemic to these Massifs which correspond to possible refuge zones where more Mesic conditions are present when compared to those of the Saharan Central compartment (Lourenço & Leguin, 2014; Lourenço *et al.*, 2012).

These Saharan Massifs, in particular Hoggar, Tassili N'Ajjer, Aïr, Adrar, Tibesti, Ennedi and Kapka, have attracted the attention of naturalists since the middle of the 20<sup>th</sup> century, and a number of contributions on scorpions have been published (e.g. Vachon, 1950, 1958). However, only more recent studies demonstrate that many of these local populations correspond in fact with endemic species (e.g. Lourenço, 2002, 2008; Lourenço & Leguin, 2014; Lourenço *et al.*, 2012). A large synopsis about these Saharan Massifs was presented by Lourenço *et al.* (2012) and will not be further discussed here. In the present study, one more new species of *Androctonus* is described from the Libyan portion of the Tibesti Massif, bringing further evidence to the importance of the Saharan Massifs as major endemic centres within the Sahara desert.

## Material and Methods

The holotype of the new species is deposited in the collections of the Muséum national d'Histoire naturelle, Paris, France (MNHN). The specimen, although quite well preserved for colouration and other characters, is extremely fragile and most segments broken. Illustrations and measurements of scorpions were made with the aid of a Wild M5 stereo-microscope with a drawing tube (camera lucida) and an ocular micrometre. Measurements follow Stahnke (1970) and are given in mm. Trichobothrial notations are those of Vachon (1974) and morphological terminology mostly follows Vachon (1952) and Hjelle (1990).

## Taxonomic treatment

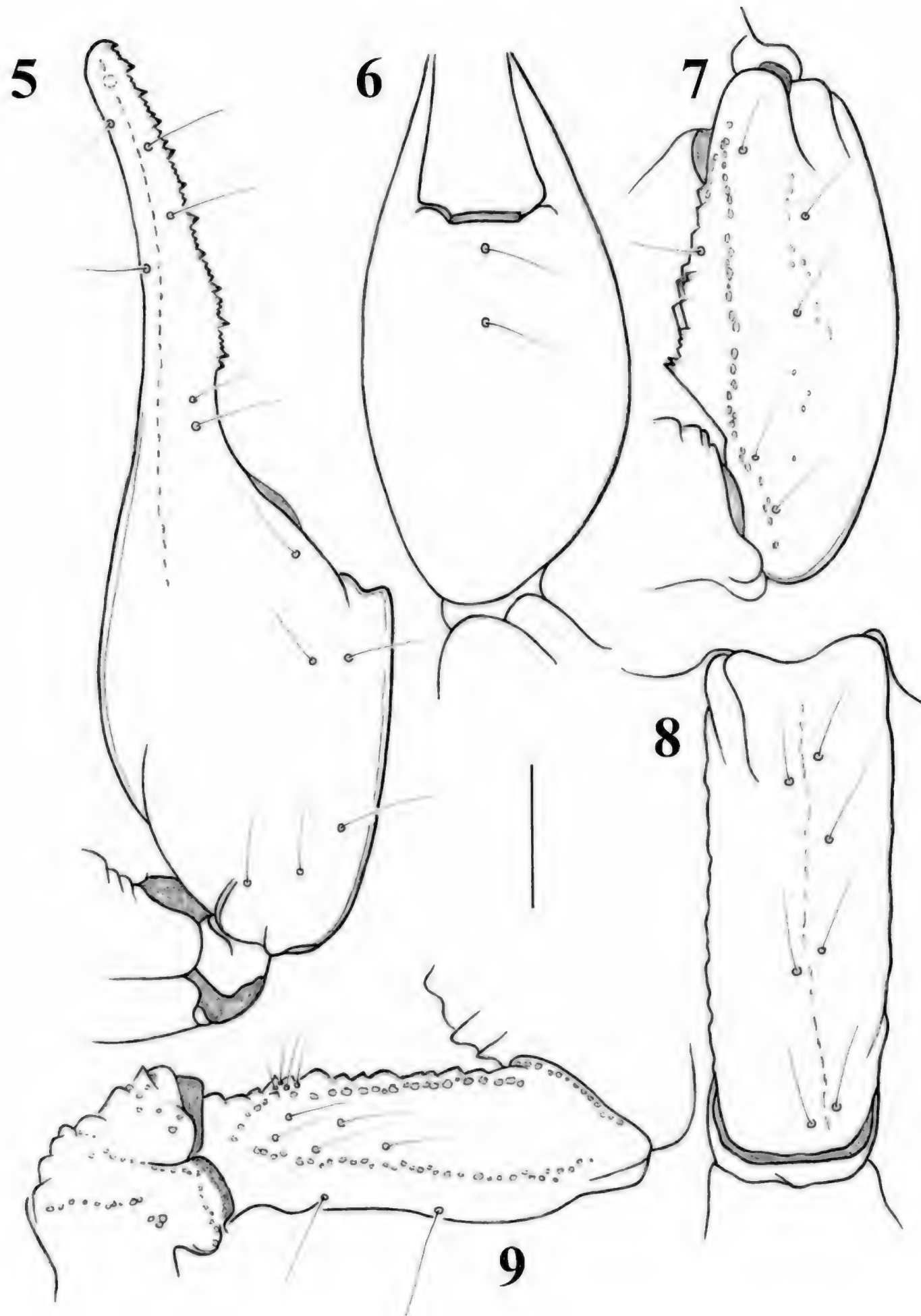
Family **Buthidae** C.L. Koch, 1837  
Genus *Androctonus* Ehrenberg, 1828  
*Androctonus tibesti* sp. n. (Figs. 1-11)

Holotype male, Libya, NE of the 'Massif du Tibesti', 580 m, X/1967 (H. Gillet) MNHN-RS-9183.

**Etymology:** the specific name is placed in apposition to the generic name and refers to the type locality of the new species.

**Diagnosis.** Scorpion of small to medium size in relation to other species of the genus *Androctonus*; the male holotype reaches a total length of 64.9 mm. General colouration yellow to pale yellow with reddish-brown confluent zones on carapace, tergites and

sternites. Carinae on carapace moderately developed. Mesosomal carinae strongly marked, in particular those on tergite VII which show spinoid granules. Metasomal segments I to V narrow and of approximately the same width; dorsal depression on segments I to IV shallow; dorsal carinae on segments III and IV with marked spinoid granules posteriorly. Anal arc with three sharp lobes and a reduced fourth lobe; presence of 14-15 moderate ventral teeth. Fixed and movable fingers with 10-11 (11-11) rows of granules. Pectines with 32-33 teeth in the male holotype. Trichobothria **et** and **est** of fixed finger located between trichobothria **dt** and **db**. Trichobothria **esb**<sub>2</sub> of external face of patella largely distal to **esb**<sub>1</sub>.



Figs. 5-9. *Androctonus tibesti* sp. n., male holotype. Trichobothrial pattern. 5-6. Chela, dorso-external and ventral aspects. 7-8. Patella, dorsal and external aspects. 9. Femur, dorsal aspect. (Scale bar: 2 mm).



**Relationships.** *Androctonus tibesti* sp. n., appears as quite distinguished from the other species of *Androctonus* also distributed in the Central region of Sahara, but shows some affinities with *Androctonus pallidus* (Figs. 12-14) described from the Massif du Kapka located in the oriental region of Chad. These two species are probably vicariants, which are now isolated in the heights of Saharan massifs where more mesic conditions prevail, but now isolated by the arid deserts surrounding these massifs. The two species can however be distinguished by the following characters: (i) an overall yellowish to pale yellow colouration in *A. pallidus* whereas in the new species, tergites and sternites are reddish-brown, (ii) carinae on tergite VII and metasomal segments more strongly marked on the new species, (iii) in the new species trichobothria **et** and **est** of fixed finger are located between trichobothria **dt** and **db**, whereas in *A. pallidus* trichobothrium **et** is distal in relation to trichobothrium **dt**, (iv) male chela in the new species with a better marked scalloping of the proximal dentate margin of fixed finger, (v) anal arc with 14-15 denticles in the new species vs 9-10 on *A. pallidus*.

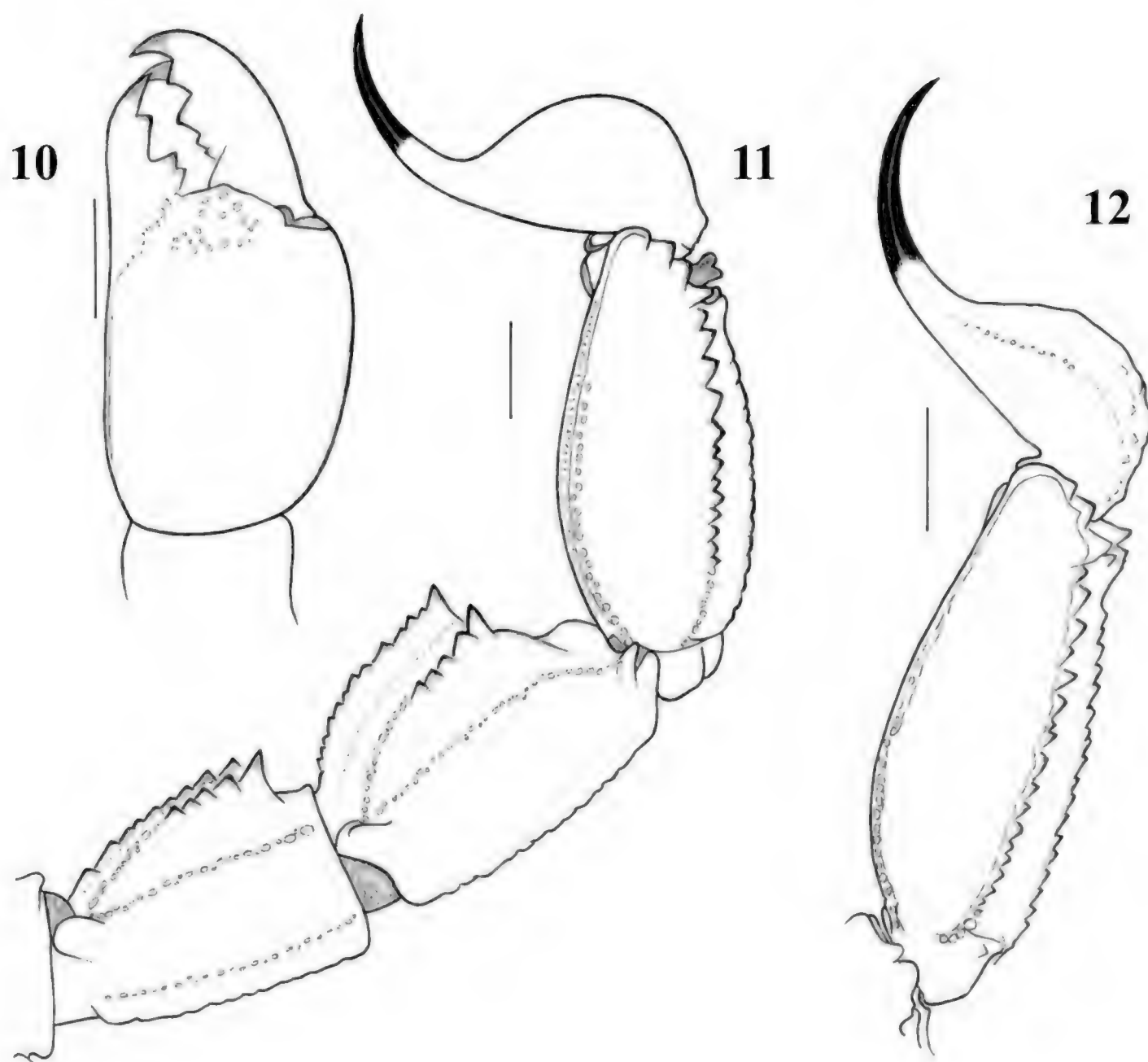
**Description.** Colouration: Mainly yellow to pale yellow with reddish-brown confluent zones on carapace, tergites and sternites. Prosoma: carapace yellowish anteriorly and reddish-brown posteriorly; eyes marked by dark pigment. Mesosoma: tergites reddish-brown with a central blackish strip. Metasomal segments I to V gold-yellow; carinae slightly coloured with reddish-yellow pigment; vesicle yellow; aculeus reddish-yellow at its base and dark-reddish at its extremity. Venter: coxapophysis, genital operculum and sternum yellow; pectines pale yellow; sternites reddish-brown. Chelicerae yellow without any variegated spots; fingers yellow with dark reddish teeth. Pedipalps: gold-yellow; fingers with the oblique rows of granules dark reddish. Legs pale yellow without any spots.

Carapace moderately granular; anterior margin straight. Carinae moderately marked; anterior median moderately granular; central median and posterior median carinae moderately to weakly granular. All furrows moderate to weak. Median ocular tubercle slightly anterior to the centre of carapace. Eyes separated by more than two ocular diameters. Four (five) pairs of lateral eyes: the first three of moderate size, the last two reduced. Sternum triangular and narrow; longer than wide. Mesosoma: tergites moderately to weakly granular. Three longitudinal carinae moderately to weakly crenulate in all tergites; lateral carinae vestigial in tergites I and II. Tergite VII pentacarinata; lateral carinae with spinoid granules. Venter: genital operculum divided longitudinally, forming two oval plates. Pectines: pectinal tooth count 32-33 in male holotype; middle basal lamella of the pectines not dilated. Sternites without granules, smooth with elongated spiracles; four moderately marked carinae on sternite VII; other sternites acarinate and with two vestigial furrows. Metasomal segments I and II with 10 carinae, moderately crenulated; segments III and IV with 8 carinae, moderately crenulated; lateral inframedian carinae incomplete on segment II; dorsal carinae on segments III and IV with conspicuous spinoid granules posteriorly; all segments with a smooth shallow dorsal depression; segment V with five carinae; the latero-ventral carinae crenulate with several spinoid denticles; ventral median carina divided posteriorly over 1/5 of the total length; anal arc composed of 14-15 moderate ventral teeth, three sharp lateral lobes and one small latero-dorsal lobe. Intercarinal spaces lustrous and smooth. Telson with some minor granulations on ventral surface, almost smooth; aculeus moderately curved and slightly shorter than the vesicle, without a subaculear tooth. Cheliceral dentition as defined by Vachon (1963) for the family Buthidae; external distal and internal distal teeth approximately the same length; basal teeth on movable finger



small but not fused; ventral aspect of both fingers and manus covered with long dense setae. Pedipalps: femur pentacarinat; patella with eight carinae but only dorso-internal and internal are better marked; other carinae reduced or vestigial; chela smooth; all faces weakly granular to smooth. Fixed and movable fingers with 10-11 (11-11) oblique rows of granules. Internal and external accessory granules present, strong; three accessory granules on the distal end of the movable finger next to the terminal denticle. Legs with a moderately marked setation, not indicating a totally typical psammophilous species (the habitat of the new species probably indicates a more lapidicolous type of adaptation); tibial spur weakly marked on legs III and IV; pedal spurs moderately marked on legs I to IV. Trichobothriotaxy: trichobothrial pattern of Type A, orthobothriotaxic as defined by Vachon (1974). Dorsal trichobothria of femur arranged in  $\beta$  (Beta) configuration (Vachon, 1975).

Morphometric values (in mm) of the male holotype. Total length, 64.9 (including telson length). Carapace: length 7.6, anterior width 5.4, posterior width 8.4. Mesosoma length 15.3. Metasomal segments. I: length 5.0, width 4.8; II: length 6.0, width 5.0; III: length 6.4, width 5.2; IV: length 7.6, width 5.2; V: length 9.3, width 5.0, depth 4.1. Telson length, 7.7. Vesicle: width 3.1, depth 2.6. Pedipalp: femur length 6.1, width 2.1; patella length 7.5, width 3.2; chela length 13.2, width 3.5, depth 3.7; movable finger length 8.8.



Figs. 10-11. *Androctonus tibesti* sp. n., male holotype. 10. Chelicera, dorsal aspect. 11. Metasomal segments III-V and telson, lateral aspect. Fig. 12. *Androctonus pallidus*, male holotype. Metasomal segment V and telson, lateral aspect. (Scale bar: (10) 1 mm, (11-12) 2 mm).

## Biogeographical comments

As previously outlined (Lourenço & Duhem, 2009; Lourenço *et al.*, 2012), the floras and faunas now present in the Sahara region could be rather old. Their present pattern of distribution reflects not only the consequences of palaeo-geographic factors, but is also largely the result of various palaeoclimates. These palaeoclimatic events had an important impact during the Quaternary when Europe (and North America) faced periods of glaciation. During these, Africa experienced periods of intense rain and, additionally, an increase in the amount of ice on the mountains (particularly in Oriental Africa). The last wet period in the Sahara was very recent, only some 3000 years BP. In fact, North Africa experienced numerous palaeoclimatological vicissitudes in the last million years, and it was not until about 3000-3500 years BP that the Sahara assumed its present arid state (Cloudsley-Thompson, 1966, 1967, 1971, 1974, 1984). Even though recent studies suggest that the Sahara Desert may be much older than was previously thought (Schuster *et al.*, 2006), and it seems reasonable to postulate that extremely arid areas have always existed as patchy desert enclaves, even when the general climate of North Africa enjoyed more mesic conditions. In these desert regions, a specialized scorpion fauna would have evolved. In contrast, other lineages less well adapted to drought, and previously present only in mesic environments, have regressed markedly in their distribution. They have therefore experienced negative selection and could be on the road to extinction, unless rescue by climatic change. In several cases, populations, less adapted to aridity and better adapted to more mesic conditions probably, with the expansion of the desert, were reduced to very limited and patchy zones sometimes with remarkable disjunctions in their distribution patterns.

The patterns observed today in the distribution of North African scorpions can be summarised as follows. A core Saharan region: defined by Vachon (1952) as the 'central compartment' in which only the best adapted species to xeric conditions, are distributed. A peri-Saharan zone of distribution; forming a kind of ring around the most arid region of the Sahara. In this zone are observed some genera whose distribution follows a circle from the North of Algeria and through the Atlas Mountains of Morocco, South via Senegal, and then East through Mali, Côte d'Ivoire, Nigeria, Sudan and Ethiopia (Lourenço, 2002, 2010). Other groups can show a remarkable disjunction in their distributions with some species in Mauritania and Morocco in Western Africa, other species in Eritrea, Djibouti and Egypt in Eastern Africa and finally some in Oman (Lourenço & Duhem, 2007; Lowe, 2010).

Vachon (1951, 1952) drawn attention to these extremely localized patterns of distribution of the species and defined it as a 'disrupted and limited territory'. Vachon also attempted to explain the observed patterns, and made reference to Braestrup (1947) who had suggested a mechanism for exchanges through the Sahara Desert. According to this, Southern elements (Ethiopian) were able to reach the Northern regions, and Northern elements (Palaeartic) were able to disperse to the Southern regions of the Sahara. This hypothesis is valid for dynamic elements with a marked capacity for dispersion. However, scorpion populations are, in many cases, predictable and stable. They show a weak capacity of re-adaptation to new environments. The present pattern of distribution of several groups of scorpions and in particular those presenting important disruptions reflect rather large ranges of distribution in the past. The distinct palaeoclimatic vicissitudes experienced by the Sahara have constituted an important selective factor over its scorpion populations. The reaction of these to abiotic factors was certainly varied depending on their own ecological strategies (Polis, 1990; Lourenço, 1991). In some cases, the populations showed significant regressions in their

distributions, and some populations may well have totally vanished. These regressions led to marked disruptions in geographic distributions and resulted in their present patchy distributions which are well represented in some oasis and in particular in the Saharan massifs.



Figs. 13-14. *Androctonus pallidus*, male holotype. Habitus, dorsal and ventral aspects.

### Massifs in Sahara

These ecoregions are located in the Sahelian regional transition zone where high mountains rise from low-lying semi-desert habitats. The height of these mountains creates an environment unlike that of the surrounding areas; here water is not scarce and sand does not dominate the soil structure. This isolated rugged habitat (Fig. 16) supports endemic plant and small animal species, and provides a critical habitat for some vertebrate populations. The largest portion of the East Saharan Montane Xeric Woodland ecoregion is located in Chad. It encompasses the Massifs of Tibesti, Ennedi and Kapka at an elevation over 1400 m (Gillet, 1959). Smaller outliers of this ecoregion are located in Sudan and Libya. This ecoregion, comprised of three isolated areas, supports dry woodland vegetation surrounded by Sahel *Acacia* wooded grassland and deciduous bushland (White, 1983). Happold (1969) found that the high jebels, which support areas of moisture-dependent habitat instead of desert and semi-desert, have a higher biodiversity value. Throughout this ecoregion, most of the year's rainfall occurs between May and September. Precipitation varies greatly with elevation, ranging from 150 to 500 mm in most areas but reaching more than 1000 mm on the higher parts of Jebel Marra. In terms of the phytogeographical classification of White (1983), this area is part of the Sahelian regional transition zone, which ranges between 1800 to 2000 m. The actual vegetation of the ecoregion is mapped as Sahelomontane (White, 1983), one of three such areas in northern Africa. The flora has affinities to that of North Africa, the Ethiopian Highlands, the Kenyan Mountains, and Europe (Wickens, 1976).

The Tibesti Mountains consist of a range of largely inactive volcanoes located on the northern edge of the Chad Basin in the Borkou and Tibesti regions of northern Chad. The massif is one of the most prominent features of the Central Sahara desert and covers



an area of approximately 100,000 km<sup>2</sup>. Its northern slopes extend into southern Libya (Fig. 15). It is one of the most isolated arid areas on Earth. The mountains are the largest and highest in the Central Sahara. Most are inactive volcanoes, but four could potentially be active (Gillet, 1959). The highest peak in the mountains is Emi Koussi, 3415 m. Other summits include Kegueur Terbi (3376 m), Tarso Taro (3325 m), the potentially active volcano Tarso Tousside (3265 m), and Tarso Voon (3100 m). The peak Bikku Bitti, located in the northern area, is the highest mountain in Libya (2266 m) (Gourgaud & Vincent, 2004). While the high peaks themselves are all constituted of volcanic material, the mountains stand on broad uplifted area caused by a mantle plume. The intense activity of the volcanism began as early as the Oligocene, though the major features that mark its surface date from Lower Miocene to the Quaternary period. It shows as a key example of continental hot spot volcanism. The basement of the mountains is Precambrian Schist, overlaid by Palaeozoic Sandstone, all capped by Tertiary and Pleistocene outpourings of basalt.



Fig. 15. Map of Libya, Chad, and part of North Africa showing the northern part of the Tibesti Mountains (red circle), approximate zone of the type locality.

The range has a substantially wetter climate than that of the surrounding desert. The run-off of precipitation is more regular in the mountains than the lowland desert. The rainfall during the 1950s was considerable, although still probably within the 600 mm/m<sup>2</sup> per year. Since 2000 rainfall has been less than 60 mm/m<sup>2</sup>. The mean maximum temperature is approximately 30°C in the lowlands and decreases to 20°C at the highest elevations. Mean minimum temperatures are 12°C in the lowlands, but decrease to 9°C in most of the ecoregion and are as low as 0°C at the highest elevations during winter. Due to the aridity of the Sahara, the Tibesti massif is nearly free from accumulated vegetal soil, and robust plant life is largely absent in almost everywhere throughout the year. The Tibesti Mountains lie in the ecological region known as the Tibesti-Djebel Uweinat Montane Xeric Woodlands. In these mountains, there is only one lake, the Mare de Zoui,



along with a number of oases. The Tibesti mountain vegetation varies according to the elevation and slope. A survey of the literature showed that only a single short note has been published by Pellegrin (1935) about the scorpions of Tibesti. In this note, dedicated to the fauna of the Tibesti region, this author merely cited the species *Leiurus quinquestriatus*. More recently, Lourenço (2004) described *Hottentotta acostai* Lourenço from the South of Tibesti. In a more complete contribution, Lourenço *et al.* (2012) described several new species for a number of genera based on material collected in Tibesti, but also Ennedi and Kapti mountains. Finally, in a quite recent publication a new species, *Leiurus ater* Lourenço, 2019 was equally described from Tibesti (Lourenço, 2019).

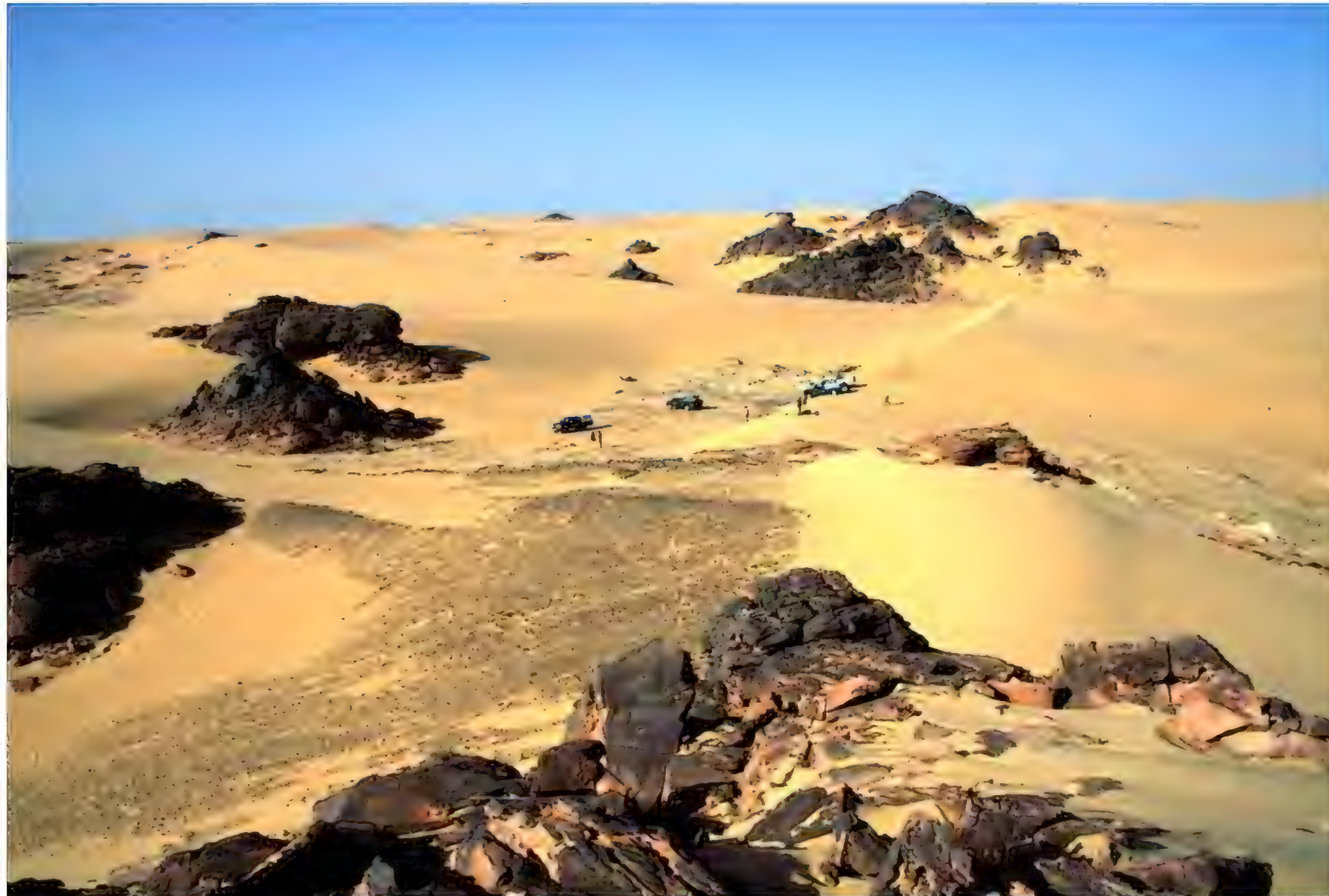


Fig. 16. Natural habitat of *Androctonus tibesti* sp. n., the North East portion of the Tibesti Massif in south of Libya (photo © Jacques Taberlet, Nord du Dohone, Google Earth).

### Acknowledgment

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Appendix 1. Species of genus *Androctonus* (in order of description) [35 species]  
(Updated and modified after Ythier & Lourenço, 2022)

- *Androctonus australis* (Linnaeus, 1758) (Algeria, Egypt, Libya, Morocco, Tunisia)
- *Androctonus crassicauda* (Olivier, 1807) (Armenia, Azerbaijan, Bahrain, Egypt, Iraq, Iran, Israel, Jordan, Kuwait, Libya, Oman, Saudi Arabia, Syria, Turkey, United Arab Emirates, Yemen)
- *Androctonus amoreuxi* (Audouin, 1825) (Algeria, Libya, Egypt, Mauritania, Morocco, Western Sahara, Israel?)
- *Androctonus bicolor* Ehrenberg, 1828 (Egypt, Israel, Libya, Syria, Jordan?, Lebanon?)
- *Androctonus aeneas* C.L. Koch, 1839 (Algeria, Tunisia)
- *Androctonus finitimus* (Pocock, 1897) (Pakistan)
- *Androctonus baluchicus* (Pocock, 1900) (Afghanistan, Pakistan)
- *Androctonus mauritanicus* (Pocock, 1902) (Morocco)
- *Androctonus liouvillei* (Pallary, 1924) (Algeria, Morocco)
- *Androctonus eburneus* (Pallary, 1928) (Algeria)
- *Androctonus hoggarensis* (Pallary, 1929) (Algeria)
- *Androctonus barbouri* (Werner, 1932) (Morocco)
- *Androctonus bourdoni* Vachon, 1948 (Morocco)
- *Androctonus gonneti* Vachon, 1948 (Mauritania, Morocco, Western Sahara)
- *Androctonus sergenti* Vachon, 1948 (Morocco)
- *Androctonus dekeyseri* Lourenço, 2005 (Mauritania, Senegal)
- *Androctonus maelfaiti* Lourenço, 2005 (India)
- *Androctonus afghanus* Lourenço & Qi, 2006 (Afghanistan)
- *Androctonus aleksandrplotkini* Lourenço & Qi, 2007 (Mauritania)
- *Androctonus togolensis* Lourenço, 2008 (Togo)
- *Androctonus maroccanus* Lourenço, Ythier & Leguin, 2009 (Morocco)
- *Androctonus pallidus* Lourenço, Duhem & Cloudsley-Thompson, 2012 (Chad)
- *Androctonus cholistanus* Kovařík & Ahmed, 2013 (India, Pakistan)
- *Androctonus robustus* Kovařík & Ahmed, 2013 (Pakistan)
- *Androctonus tenuissimus* Teruel, Kovařík & Turiel, 2013 (Egypt)
- *Androctonus donairei* Rossi, 2015 (Morocco)
- *Androctonus santi* Lourenço, 2015 (Niger)
- *Androctonus simonettai* Rossi, 2015 (Ethiopia)
- *Androctonus tigris* Lourenço, Rossi & Sadine, 2015 (Ethiopia)
- *Androctonus tropeai* Rossi, 2015 (Pakistan)
- *Androctonus bartolozzii* Rossi & Merendino, 2016 (Pakistan)
- *Androctonus burkinensis* Ythier, 2021 (Burkina Faso)
- *Androctonus turkiyensis* Yağmur, 2021 (Turkey)
- *Androctonus agrab* Ythier & Lourenço, 2022 (Western Sahara)
- *Androctonus tibesti* sp. n. Lourenço & El-Hennawy, 2022 (Libya)

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***Androctonus tibesti* Lourenço & El-Hennawy, 2022**

urn:lsid:zoobank.org:pub:BAFBD5DF-2AD6-4A49-8973-E4774C57BE3A

## A new species of trapdoor spider genus *Heligmomerus* Simon, 1892 (Araneae: Mygalomorphae: Idiopidae) from West Bengal, India

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### Abstract

A new species of front-eyed trapdoor spider *Heligmomerus jagadishchandra* sp. n. is described from the holotype collected in Keshpur (West Medinipur, West Bengal, India). Habitat information of the species is provided too.

**Keywords:** *Heligmomerus*, new species, habitat, taxonomy, West Bengal, India.

### Introduction

The mygalomorph spider genus *Heligmomerus* Simon, 1892 represents front-eyed trap door spiders. So far only 13 species are described under this genus from Africa and Asia, out of which six are from India viz., *H. prostans* Simon, 1892, *H. biharicus* (Gravely, 1915), *H. barkudensis* (Gravely, 1921), *H. garoensis* (Tikader, 1977), *H. maximus* Sanap & Mirza, 2015 and *H. wii* Siliwal, Hippargi, Yadav & Kumar, 2020 (Simon, 1892; Gravely, 1915, 1921; Tikader, 1977; Sanap & Mirza, 2015; Siliwal *et al.*, 2020; World Spider Catalog, 2022). Though, the genus. was originally described under the family Ctenizidae by Simon (1892), later Raven (1985) has transferred it to the

family Idiopidae due to presence of an open scoop like distal haematodocha in males that extends down almost to the embolus. Members of this genus bears of a dorsal saddle-shape depression on third tibia that separates them from other *Idiops* (Raven, 1985). These spiders are poorly documented from India as they are not easily traced being specialized in constructing camouflaged trap door burrows on earthen surfaces, mounds or road side 'bandhs' (dams). In this paper, we describe a new species, *Heligmomerus jagadishchandra* sp. n. based on a male specimen from West Bengal.

### Material and Methods

The specimen was deposited at Indraprastha University Museum (IPUM), New Delhi, India. All measurements are in millimetres and were taken with Leica LAS interactive measurement software. Leg measurements were taken dorsally for the left side. Eye measurements were done with calibrated ocular micrometer. Spermathecae were dissected and cleared in concentrated lactic acid. Total length excludes chelicerae. The microphotographic images were taken by Leica MC 190 HD camera and all illustrations were prepared with the help of a camera lucida attached to a Leica M205 FA stereomicroscope.

Abbreviations: ALE = anterior lateral eye, AME = anterior median eye, MOQ = median ocular quadrate, PLE = posterior lateral eye, PLS = posterior lateral spinnerets, PME = posterior median eye, PMS = posterior median spinnerets. Abbreviations used for hair and spines count are: fe = femur, mt = metatarsus, p = prolateral, pa = patella, r = retrolateral, ta = tarsus, ti = tibia, v = ventral.

### Systematic account

***Heligmomerus jagadishchandra*** sp. n. Das, Pratihari, Khatun & Diksha (Figs. 1-3)

**Type specimen:** holotype ♂, INDIA, 21.ix.2020, Keshpur, West Medinipur, West Bengal 22°33'25.61"N, 87°27'54.12"E, coll. S. Pratihari and J. Khatun, IPU-20-ARA-1594.

**Diagnosis:** The male of *Heligmomerus jagadishchandra* sp. n. (Fig. 1) closely resembles *H. wii* having distal tibial apophysis narrowing gradually into pointed tip and facing upward, proximal tibial apophysis with blunt, rounded tip (Figs. 2H-I), leg formula 4123, and palpal tibia with a retrolateral excavation (Fig. 3C) (by this character it also resembles *H. barkudensis* but differs from *H. biharicus*), but it differs from the later by having equal-sized paired claws with two teeth each, one of the lateral processes of cymbium with a prominent inwardly directed spine (Figs. 3A-B) (by this character it differs from all other congeners), sperm duct forms two coils in the bulb both prolaterally and ventrally (Figs. 3A-B) (by this character it also differs from all other congeners) and embolus distally with a ventral thin flange and ends in a hook-like tip (Fig. 3D) (this character either absent or unknown on embolus of *H. biharicus* and *H. barkudensis*) (Gravely, 1915, 1921; Tikader, 1977; Sen *et al.*, 2012; Siliwal *et al.*, 2020; World Spider Catalog, 2022).

**Etymology:** The species epithet is a noun in apposition in honour of renowned biologist and physicists, Sir Jagadish Chandra Bose.

**Description of holotype male** (IPU-20-ARA-1594) (Figs. 1-2): Total length 9.32; carapace 4.86 long, 4.42 wide; abdomen 4.46 long, 3.38 wide. Colour in life: dorsally greyish black with silvery bands on legs (Fig. 1). Colour in alcohol: carapace dark brown,





Fig. 1. *Heligmomerus jagadishchandra* sp. n. ♂ alive

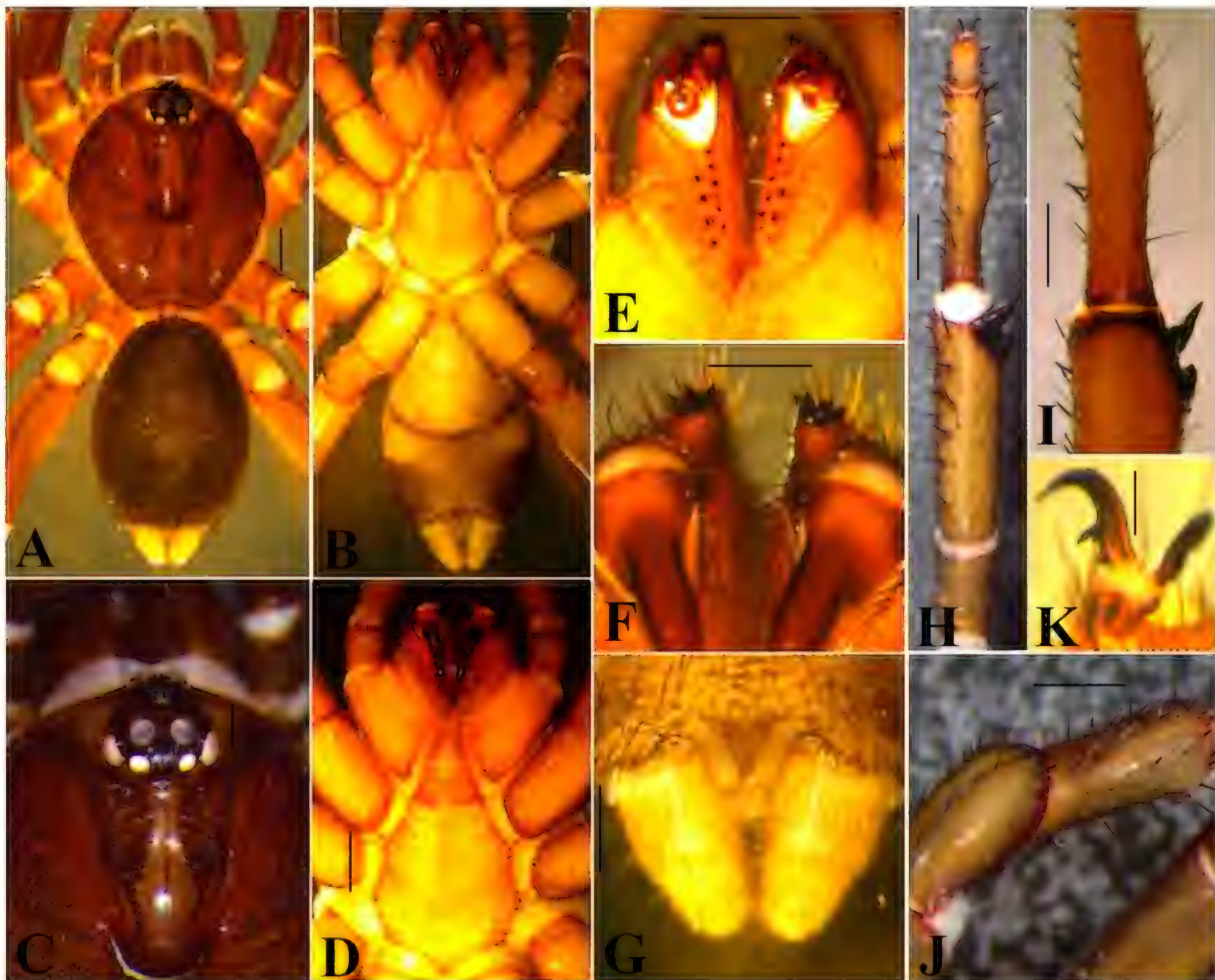


Fig. 2. *Heligmomerus jagadishchandra* sp. n. ♂. A-B. Habitus. A. dorsal view. B. ventral view. C. Eyes and dorsal view of chelicerae. D. Sternum, labium and maxillae. E. Cheliceral teeth. F. Whorl of spines on cheliceral tips. G. Spinnerets. H. Leg I (pa to ta) ventral view. I. Leg I (Ti to mt) dorsal view. J. Leg III (Pa and ti) lateral view. K. Claws of leg I. (Scale bars: (A, B, D-F, H-J) = 1 mm, (C, G) = 0.5 mm, K = 0.2 mm).

lighter around eye region. light reticulations radiate from fovea to margin surrounded by dark warts, pair of bean shaped dark warty spots behind the eye group from which stalk like marks extends up to fovea, chelicerae and legs yellowish-brown, legs with white bands, sternum, labium and maxillae yellowish, abdomen dorsally greyish, mottled with scattered whitish spots, ventrally yellow on anterior half and light grey posteriorly, spinnerets yellow (Figs. 2A-D, G). Carapace warty and reticulate, broader between legs II and gradually narrowing posteriorly, clypus very narrow, fovea procurved and crescent shaped (Fig. 2A). Eyes: eight in three rows, ALE situated far away from AME on clypeal edge (Figs. 2A, C), ocular group 1.06 long, front width 0.61, back width 1.18, MOQ 0.75 long, front width 0.62, back width 0.63, posterior row procurved (Fig. 2C). Eye diameters and inter-distances: AME 0.30, PME 0.21, ALE 0.31, PLE 0.33; ALE-AME 0.42, PME-PME 0.29, ALE-PLE 0.44, AME-AME 0.04, PLE-PME 0.07, and ALE-ALE adjacent. Chelicerae dorsally with two glabrous bands lined by bristles (Fig. 2A), rastellum conspicuous, anteriorly raised on high triangular mound, surrounded by whorl of eight thick pointed spines (Figs. 2D-E), promargin with seven teeth and retromargin with four teeth (Fig. 2E). Maxillae 0.67 long, 1.09 wide, no cuspules; anterior lobe distinct (Fig. 2D). Labium 1.79 long, 1.04 wide, labiosternal groove shallow, slightly procurved, capsules absent (Fig. 2D). Sternum 2.65 long, 2.29 wide, broader between coxae II-III, elevated in centre, sloping laterally, covered with short and long black bristles; posterior angle acute with two pairs of marginal sigilla, posterior sigilla absent (Fig. 2D). Abdomen oval, uniformly covered with short black hairs both dorsally and ventrally, cuticle appears leathery and little rough (Fig. 2A). Legs: scopulae present ventrally on tarsi of all legs, ti I inflated with two prolateral tibial apophyses; distal apophysis possesses stout spur with broad base, narrowing gradually into pointed tip, facing up, proximal apophysis with blunt, smooth surface facing distal spur (Figs. 2H-I); mt I gently excavated basally, but prolateral process absent (Figs. 2H-I); ti III faintly excavated dorsally (Fig. 2J). Leg measurements: (femur, patella, tibia, metatarsus, tarsus, total): leg I: 4.61, 2.19, 3.68, 3.60, 0.87, 14.95; leg II: 3.64, 1.73, 2.36, 2.18, 0.99, 10.90; leg III: 2.84, 1.94, 1.49, 2.01, 0.84, 9.12; leg IV: 4.20, 2.22, 3.46, 3.69, 1.54, 15.11; palp 2.93, 1.32, 2.94, 1.07, 8.26; leg formula 4123. Spines: present on legs, more on sides, I: ti p=3, r=14, mt p=07, r=11, v=4, ta p=4, r=5; II: ti p=3, r=5, mt p=7, r=9, ta p=2, r=7; III: pa p=3, ti p=6, r=6, mt p=5, r=8, ta p=6, r=10; IV: pa p=3, r=13, ti p=7, r=6, mt p=8, r=8, ta p=6, r=5; palp: fe p=2, pa p=5, r=2, ti p=4, r=13. Trichobothria: clavate absent, filiform, present on all legs. Claws: all legs with three claws, unpaired claw smallest and smooth, paired claws are of equal size, thicker and bear two teeth each, but internal claw distally with an unequal bifid tooth (Fig. 2K). Spinnerets: PMS 0.42 long, digitiform and covered with brown hairs, PLS 1.09 long, apical segment domed and covered with brown hairs (Fig. 2G). Palp: tibia basally bulging (Figs. 3A-C), with a retrolateral excavation, bearing short, thorn-like spines arranged in a half-circle (Fig. 3C), cymbium with two long spines dorsally, truncated distally into two lateral processes, one of the processes with a prominent inwardly directed spine (Figs. 3A-B). Palpal bulb helicoid and sperm duct forms two coils in the bulb both prolaterally and ventrally (Figs. 3A-B). Median haematodocha fused with bulb, distal haematodocha open and scoop like that extends down to the embolus (Figs. 3A-C). Embolus long and gradually tapers towards tip, distally with a ventral thin flange and ends in a hook-like tip. (Fig. 3D).

**Distribution:** West Bengal (type locality), India (Fig. 4A).

**Habitat:** *Heligmomerus jagadishchandra* sp. n. was found on road side cut in an open woody plantation area (Fig. 4B).





Fig. 3. *Heligmomerus jagadishchandra* sp. n. ♂. A-C. Palp. A. prolateral view. B. ventral view. C. retrolateral view. D. Embolus hook-like distal tip. (Scale bars: (A-C) = 1 mm, D = 0.2 mm).

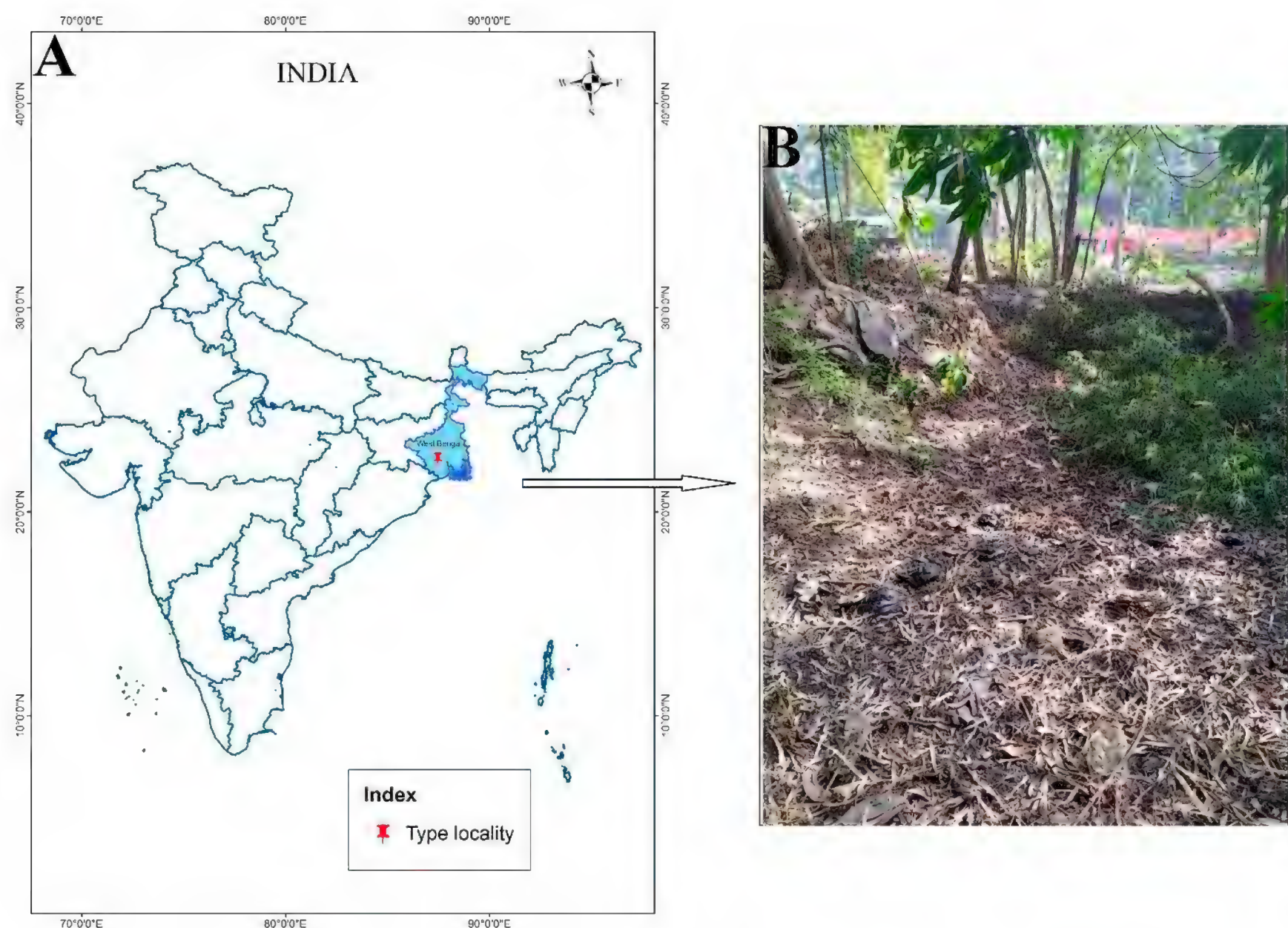


Fig. 4. *Heligmomerus jagadishchandra* sp. n. ♂. A. type locality map. B. Habitat.

**Note.** While going through the description of *H. wii* (Siliwal *et al.*, 2020), it was noticed that the paper, by mistake, has provided the diagram of prolateral view of palp as ventral view and vice versa.



## Acknowledgments

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*Heligmomerus jagadishchandra* Das, Pratihar, Khatun & Diksha, 2022

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## **A new lynx spider of the genus *Hamataliwa* Keyserling, 1887 (Araneae: Oxyopidae) from Kerala, India**

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### **Abstract**

*Hamataliwa crista* sp. n. female is collected from Pathiramanal Island of Alappuzha district of Kerala. This species is somewhat resembling to *Hamataliwa foveata* Tang & Li, 2012 by considering its external morphology. At the same time, it shows greater variance from its counterpart in their epigyne structure. A detailed morphological description, diagnostic features of the copulatory organ of the new species *Hamataliwa crista* sp. n. collected from Pathiramanal Island are given.

**Keywords:** Oxyopidae, *Hamataliwa*, Lynx spider, new species, description, Kerala, India.

### **Introduction**

Thorell (1869) established the family Oxyopidae. It is a fairly small family hosting 9 genera, 437 species, and 5 subspecies (World Spider Catalog, 2022) including genus *Hamataliwa* Keyserling, 1887. These small to large sized spiders are distinguished by three tarsal claws, prominent setae on legs, and four distinct rows of eyes (2-2-2-2), mainly inhabiting panicles of plants, leaves of the grasses and on other weeds found along field margins (Zhang & Zhu, 2005). Only seven species of *Hamataliwa* were identified from India (Caleb & Sankaran, 2022; World Spider Catalog, 2022). Many species of this genus are arboreal in habit and found on barks of trees and twigs or woody

shrubs (Brady, 1970), with relatively drab body colour, long hairs on the legs and opisthosoma, and weakly developed last two pairs of legs (Zhang *et al.*, 2005). The aim of the present study is to present the record and description of a new species of genus *Hamataliwa* collected from Pathiramanal Island of Kerala, India.

## Material and Methods

One specimen was collected from Pathiramanal Island by handpicking and directly transferred to 70% ethanol. The photographs and measurements were taken by using Leica M205C stereomicroscope, a Leica DFC450 Camera, and LAS software (Ver.4.12). Epigyne was dissected and cleared in 10% potassium hydroxide (KOH) solution for one day. Ocular measurements were taken from the dorsal side. Leg measurements are shown as: total length (femur, patella, tibia, metatarsus, tarsus). All measurements are in millimetres (mm). The studied specimen was deposited in the reference collection at the Centre for Animal Taxonomy and Ecology (CATE), Department of Zoology, Christ College (Autonomous), Irinjalakuda, Kerala, India.

Abbreviations used in the text and figures are as follows: AL = abdomen length, ALE = anterior lateral eye, AME = anterior median eye, AW = abdomen width, CD = copulatory duct, CL = cephalothorax length, CW = cephalothorax width, ECD = extension of the copulatory duct, FD = fertilization duct, PLE = posterior lateral eye, PME = posterior median eye, S = spermatheca, TL = total length (Tang & Li, 2012; Baehr *et al.*, 2017; Lo *et al.*, 2021). Spination abbreviations: do = dorsal, pl = prolateral, rl = retrolateral, v = ventral.

## Results

### *Hamataliwa crista* sp. n.

**Material examined:** ♀ (Holotype) from Pathiramanal Island (9°37'7.82"N, 76°23'7.04"E), Kerala, India, collected on 27 December 2021, K.B. Amulya.

**Etymology:** The noun *Crista* denotes to the comb like extension of the copulatory duct; it is from the Latin for *crest* or *plume*.

**Diagnosis:** This species can be separated from other congeneric species on the basis of the structure of the epigyne. External morphology of *Hamataliwa crista* sp. n. more or less similar to *Hamataliwa foveata* Tang & Li, 2012. At the same instant there is a remarkable difference in the structure of the epigyne. The structure of epigyne shows some similarity with *Hamataliwa pentagona* Tang & Li, 2012. The spermatheca is large in *H. pentagona* but it is small and oval shaped in *H. crista*. Presence of a comb like structure on posterior end of the epigyne which is absent in *H. pentagona*. The void space in epigyne is pentagon shaped in *H. pentagona* but it nearly spades shaped in *H. crista*.

**Description. Female** (Holotype, Fig. 1A): Measurements: TL 4.487, CL 1.869, CW (at the middle) 1.932, AL 2.618, AW (at the middle) 1.649; ocular area length 0.484, width 0.228, ocular diameters AME 0.072, ALE 0.281, PME 0.184, PLE 0.193, ocular inter distances: AME–AME 0.172, AME–ALE 0.200, PME–PME 0.382, PME–PLE 0.377, ALE–PLE 0.284, ALE–ALE 0.125, PLE–PLE 0.407. Clypeus height 0.427. Length of chelicera 1.331. Palp and leg measurements: palp 2.662 (0.720, 0.358, 0.523, 1.061), leg I 5.873 (1.801, 0.734, 1.403, 1.160, 0.775), II 6.130 (2.051, 0.663, 1.212, 1.566, 0.638), III 9.239 (3.138, 0.850, 2.521, 1.803, 0.927), IV 8.274 (2.617, 0.724, 2.329, 1.771, 0.833). Leg formula III-IV-II-I. Spination of legs: femur I rl 2 do 3 pl 3, II rl 1 do 1 pl 2, III rl 0



do 2 v 3 pl 2, IV rl 1 do 3 pl 1; patella I rl 1 do 2 pl 2, II rl 1 do 2 pl 0, III rl 1 do 2 pl 2, IV rl 0 do 3 pl 0; tibia I rl 2 do 3 pl 2, II rl 3 do 3 pl 2, III rl 3 do 2 pl 2, IV rl 0 do 3 pl 2; metatarsus I rl 2 do 3 pl 2, II rl 3 rlv 2 do 3 pl 3, III rl 3 do 3 v 1 pl 3, IV rl 3 do 3 pl 3 rlv 2; tarsus I–IV spineless and two clawed. Cephalothorax yellowish brown in colour, ocular region profusely covered with tiny hairs. Chelicerae is long with one retromarginal tooth, promarginal teeth absent. Abdomen is slightly triangular towards the anterior end. Yellowish colour with dark brown patches on the lateral and middle of the abdomen. Anterior end of the abdomen highly convex.

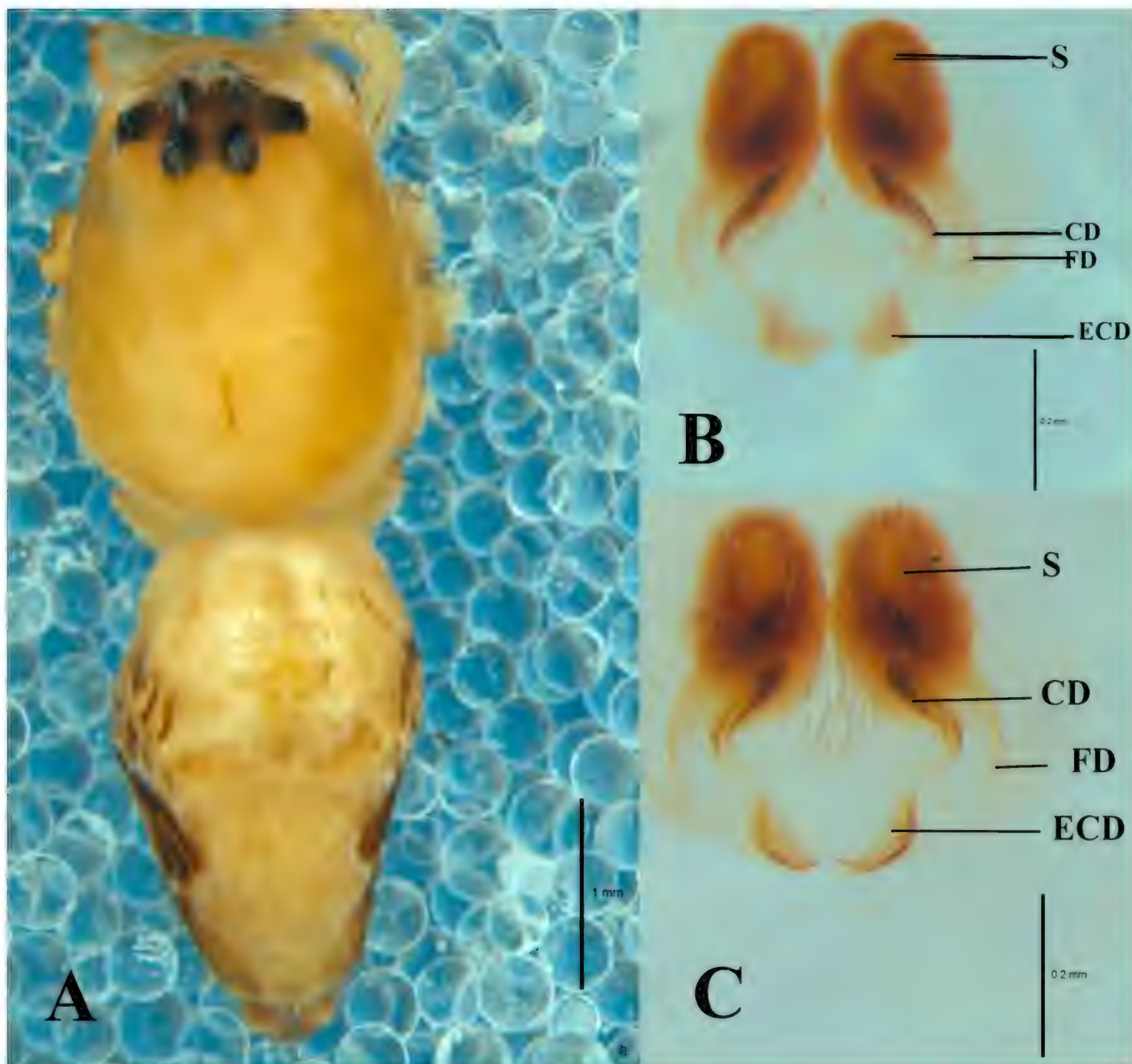


Fig. 1. *Hamataliwa crista* sp. n. ♀ Holotype. A. Habitus, dorsal view. B-C. Epigyne. B. dorsal view. C. ventral view.

**Epigyne** (Figs. 1B-C): highly sclerotised, spermatheca oval in shape, fertilization duct and copulatory duct short and their opening in parallel positions. The copulatory duct extends with a comb like structure.

**Natural History:** The specimen was collected from low level grass, and shrubs (vegetable plants in the wild) in December. *Hamataliwa* species was found in a cage made up of rotten leaf like material. Hence, it shows a mimicking behaviour. It is difficult to identify the species from its surroundings.

## Acknowledgments

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***Hamataliwa crista* Amulya, Sebastian & Sudhikumar, 2022**

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## **An updated checklist of spider fauna (Arachnida: Araneae) in different districts of Karnataka state, India**

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### **Abstract**

The present checklist of spider fauna of Karnataka is the outcome of the compilation of all published literature up to July 30, 2022. A total of 393 species of spiders described under 194 genera belonging to 39 families are enlisted that have been described and/or recorded from 24 out of 31 districts of Karnataka. Additionally, a total of 165 species belonging to 30 families recorded from different districts of Karnataka were identified only upto generic level and 41 species of spiders belonging to 14 families seem to be misidentified and all these species have been excluded from the total list of spiders of the state. The maximum number of spider species were recorded from Bengaluru Urban district (147 species) followed by Mysuru (132 species), Dakshina Kannada (105 species), Shivamogga (101 species), Chikkamagaluru (71 species), Tumakuru (62 species), Kalaburagi (53 species), Chamarajanagara and Koppal (50 species each) and less than 50 species in other districts. The largest family recorded in Karnataka is Araneidae (79 species, 28 genera), Salticidae (72 species, 41 genera), Lycosidae (33 species, 9 genera), Thomisidae (32 species, 17 genera), Theridiidae (26 species, 13 genera), Tetragnathidae (25 species, 6 genera), Gnaphosidae (13 species, 10 genera), Sparassidae (13 species, 3 genera), Oxyopidae (12 species, 2 genera), Theraphosidae (11 species, 5 genera), and less than 10 species in other 29 families. No faunal survey of spiders so far conducted in 7 districts of Karnataka. Most of the national parks and wildlife sanctuaries, forest areas, agricultural fields, human dwellings etc. of Karnataka still await intensive and extensive survey programmes to record a near complete spider fauna.

**Keywords:** Spiders, Araneae, checklist, faunal distribution, Karnataka, India.

## Introduction

Spiders (Arachnida: Araneae) are most fascinating predatory arthropods in terrestrial ecosystem and are globally distributed except arctic zones. Being insect predators, they are economically highly significant both in agriculture and natural ecosystems so that if they disappear from the earth surface, we would have no more than few years left to survive due to food shortage caused by crop destruction by insects. Depending upon the habitats and food, they have evolved interesting ways of prey capture techniques and reproduction. Globally, they account 50,261 species in 4,274 genera belonging to 132 families (World Spider Catalog, 2022). In India, Caleb & Sankaran (2022) listed only 1908 species belonging to 492 genera in 61 families, however, Singh & Singh (2021a) mentioned 2344 species under 596 genera comprising 65 families, though many species recorded by several authors have been marked by them as the case of misidentification.

The inventory of fauna and flora of a given region is one of the prime objectives for setting up biodiversity conservation action plan of that region. The conservation status of 99.5% of the spider species has not yet been evaluated by the IUCN globally (Seppälä *et al.*, 2018). Despite recent research works on the diversity and distribution of spiders in India, their number is insufficient as compared to the other parts of the world because of general negligence in most of the areas of the country.

The spider taxonomy in Karnataka probably began during British period with the description of a velvet spider (Eresidae), *Stegodyphus tibialis* by Pickard-Cambridge (1869). Later, Pocock (1899, 1900) and Strand (1907a, b, 1909) described/recorded 14 and 15 species, respectively, from different districts of Karnataka. After few years, Gravely (1915, 1921, 1924, 1931) and Sherriffs (1927, 1928, 1929, 1931) described/recorded 22 and 25 species of spiders, respectively, from Karnataka. Among the Indian authors during post-independent period, Tikader (1963a) was the first to describe 10 species of crab-spiders (Thomisidae) from the state. Later on, a number of authors (Tikader, 1966, 1969, 1971, 1980, 1982; Tikader & Mukerji, 1971; Platnick & Shadab, 1974; Tikader & Gajbe, 1976; Biswas, 1977; Tikader & Gajbe, 1977; Tikader & Biswas, 1978, 1981; Tikader & Malhotra, 1980; Tikader & Malhotra, 1980; Gajbe, 1988, 1999; Majumder & Tikader, 1991; Logunov, 2001) have described and/or recorded several spider species from different districts of Karnataka. No extensive survey for fauna of spider in Karnataka was conducted during twentieth century. In recent century, at least 28 new species were described from 10 districts of Karnataka, for example, from Belagavi and Mysuru (*Pandava ganga* Almeida-Silva, Griswold & Brescovit, 2010), Bengaluru Urban (*Icius kumariae* Caleb, 2017; *Maripanthus gloria* Caleb, 2021), Chamarajanagara, Mysuru (*Makdiops mahishasura* Crews & Harvey, 2011), Chikkamagaluru (*Meotipa multuma* Murthappa, Malamel, Prajapati, Sebastian & Venkateshwarlu, 2017; *Colaxes sazailus* Paul, Prajapati, Joseph & Sebastian, 2020), Kalaburagi (*Euryeidon katapagai* Talwar, Majagi, Bodkhe & Kamble, 2018); Kodagu (*Indopadilla kodagura* Maddison, 2020; *Maripanthus jubatus* Maddison, 2020); Shivamogga (*Brignolia jog* Platnick, Dupérré, Ott & Kranz-Baltensperger, 2011; *Brignolia karnataka* Platnick, Dupérré, Ott & Kranz-Baltensperger, 2011; *Cambalida deorsa* Murthappa, Prajapati, Sankaran & Sebastian, 2016; *Cyrtarachne sunjoymongai* Ahmed, Sumukha, Khalap, Mohan & Jadhav, 2015; *Eriovixia gryffindori* Ahmed, Khalap & Sumukha, 2016; *Leptopholcus kandy* Huber, 2011; *Paraplectana rajashree* Ahmed, Sumukha, Khalap, Mohan & Jadhav, 2015; *Pelcinus madurai* Platnick, Dupérré, Ott, Baehr & Kranz-Baltensperger, 2012; *Thelcticopis kirankhalapi* Ahmed, Sumukha, Khalap, Mohan & Jadhav, 2015; *Wadicosa ghatica* Kronstedt, 2017), Uttara Kannada



(*Ariadna chhotae* Siliwal & Yadav, 2017; *Ariadna molur* Siliwal & Yadav, 2017; *Idiops joida* Gupta, Das & Siliwal, 2013; *Neoheterophrictus crurolfulvus* Siliwal, Gupta & Raven, 2012; *Neoheterophrictus sahyadri* Siliwal, Gupta & Raven, 2012; *Neoheterophrictus smithi* Mirza, Bhosale & Sanap, 2014; *Neoheterophrictus uttarakannada* Siliwal, Gupta & Raven, 2012; *Tigidia sahyadri* Siliwal, Gupta & Raven, 2011), and Vijayanagara (*Heser vijayanagara* Bosselaers, 2010).

The following authors have conducted the surveys for the spider fauna in different districts of Karnataka. Nalini Bai & Ravindranatha (2012), Ramakrishnaiah *et al.* (2014), Murali *et al.* (2017), Jalajakshi & Usha (2019), Fernandes & Ganesh (2020) and Sharma & Ramakrishna (2021) recorded 37, 31, 10, 19, 21 and 22 spider species, respectively, from Bengaluru Urban; Bhat *et al.* (2013), Almale (2017), Joshi & Venkateshwarlu (2017) and Rao *et al.* (2018) recorded 74, 24, 29 and 17 spider species, respectively from Dakshina Kannada; Pawar & Ganesh (2016) recorded 34 species from Belagavi; Deshpande & Paul (2016) and Talwar *et al.* (2020) recorded 16 and 41 species, respectively, from Kalaburagi; Murali *et al.* (2017) recorded 22 species from Kodagu, Bengaluru Rural and Chikkaballapura; Prashanthakumara & Venkateshwarlu, (2017b) and Somashekar *et al.* (2020) recorded 18 and 16 species, respectively from Chikkamagaluru; Vaibhav *et al.* (2017) recorded 40 species from Dharwad; Prashanthakumara & Venkateshwarlu (2017a) and Shraddha & Chaturved (2019) recorded 46 and 37 species, respectively, from Shivamogga; Nautiyal *et al.* (2017) recorded 49 species from Yadagiri; Tabasum *et al.* (2018) recorded 20 species from Ballary; Mubeen & Basavarajappa (2018), Nijagal *et al.* (2020), Abhijith (2021) reported 51, 26 and 69 species, respectively, from Mysuru; Kokilamani *et al.* (2019) and Sharma & Ramakrishna (2021) reported 30 and 29 species, respectively, from Tumakuru; and Padma & Sundarraaj (2021) recorded 41 species from sandalwood plantation of Karnataka in Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Tumakuru districts. Thus, the available information on the spiders of the Karnataka is scattered in literature and several areas of the state have not yet been surveyed for their faunal distribution.

Recently, the checklist of spider fauna of northeast Indian states (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura) (Singh & Singh, 2021b), north and northwest Indian states (Haryana, Himachal Pradesh, Punjab), and two union territories (Chandigarh, Delhi) (Singh & Singh, 2021c), Bihar and Jharkhand (Singh & Singh, 2021d), Chhattisgarh (Singh BB & Singh, 2021), Goa (Singh & Singh, 2022a), Uttar Pradesh and Uttarakhand (Singh & Singh, 2022b), Rajasthan (Singh & Singh, 2022c), Andaman and Nicobar Islands, Puducherry and Lakshadweep (Singh & Singh, 2022d), Odisha (Singh & Singh, 2022d), Madhya Pradesh (Singh & Sharma, 2022a), Andhra Pradesh (Singh & Sharma, 2022b), and Telangana (Singh & Sharma, 2022c) have been prepared by us. In this continuation, the objective of this study is to bring together an authoritative update checklist of all spiders recorded and/or described from Karnataka, a south western Indian state.

## Material and Methods

### Site description

Karnataka (formerly Mysore) (latitude: 11.5° to 18.5°N; longitude: 74° to 78.5°E, area: 1,91,791 km<sup>2</sup>) is one of the south western states of India. It is bordered by Telangana to the northeast, Andhra Pradesh to the east, Tamil Nadu to the southeast, Kerala to the southwest, Arabian Sea to the west, Goa to the northwest and Maharashtra to the north, and thus have the land borders with all other 4 southern Indian sister states.

Administratively, Karnataka has been divided into 33 districts (Fig. 1). Karnataka has three principal geographical zones: the coastal region of Karavali and Tulu Nadu, the hilly Malenadu region comprising the Western Ghats, a hotspot of fauna and flora and the northern Bayaluseeme arid region comprising the plains of the Deccan Plateau. Krishna (north Karnataka) and Kaveri (south Karnataka) and its tributaries are the main river system of the state. About 16% of the state's geographic area is covered by forests. There are four seasons in Karnataka: winter (January-February, minimum temperature 3°C), summer (March-May, maximum temperature 45°C), monsoon (June-September) and the post monsoon (October-December). The coastal zone receives the heaviest rainfall (ca. 3,638.5 mm) per annum. Main agricultural crops are rice, ragi, maize and sorghum. There are five National Parks, notably Bandipur and Nagarhole National Parks; 27 wildlife sanctuaries, several waterfalls, reservoirs and lakes (Ranganatha, 2017) in the state.

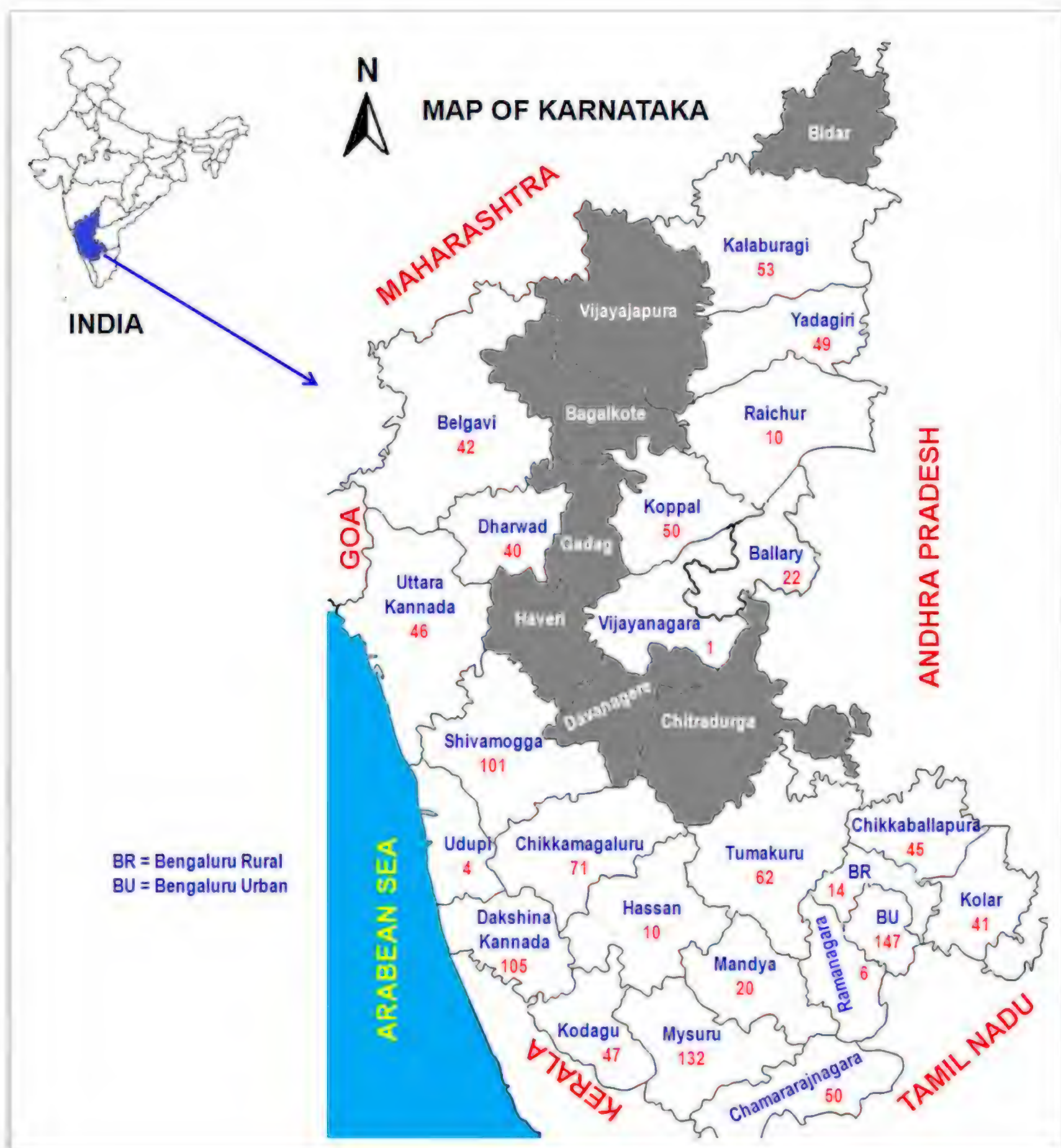


Fig. 1. Number of spider species described and/or recorded from different districts of Karnataka state, India.



The present checklist is based on the published literature on the spiders recorded from India, e.g. books, book chapters, journals, proceedings of conferences, Records and Fauna Series of the Zoological Survey of India, Kolkata, few authentic theses, websites (only research grade contents), and World Spider Catalog (2022) up to March 20, 2022. In the present checklist, attempts have been made to correct the errors in the scientific names of the spiders following World Spider Catalog (2022). The species identified only up to generic level and seemingly misidentified species are excluded from the state list and are given separately. For synonymy and endemism of valid spider species, World Spider Catalog (2022) should be consulted. In few cases, the locations of spider species are corrected, particularly of those spiders that were described/recorded during the British period and even after the independence of India (1947) till the formation of Karnataka in November 1, 1973 by incorporating some part of the adjoining states, Andhra Pradesh, Maharashtra and Tamil Nadu.

## **Results and Discussion**

Total number of species recorded in different districts of Karnataka are displayed in Table (1), the species identified only upto generic level are presented in Table (2) while seemingly misidentified species are listed in Table (3).

In the present compilation, a total of 393 species of spiders described under 194 genera belonging to 39 families were enlisted that have been recorded and/or described from only 24 out of 31 districts of Karnataka giving up-to-date information (Table 1). Total 165 species belonging to 30 families of spiders recorded from Karnataka were identified only upto generic level (Table 2) and are excluded from the total list of spiders of Karnataka. Also, 41 species belonging to 14 families seem to be misidentified as these species are not recorded elsewhere in India (World Spider Catalog, 2022; Caleb & Sankaran, 2022) (Table 3) and hence, are excluded from the state list.

The maximum number of spider species were recorded from Bengaluru Urban district (147 species) followed by Mysuru (132 species), Dakshina Kannada (105 species), Shivamogga (101 species), Chikkamagaluru (71 species), Tumakuru (62 species), Kalaburagi (53 species), Chamarajanagara and Koppal (50 species each) and less than 50 species in other districts (Table 4). No faunal survey of spiders so far conducted in 7 districts of Karnataka shown by grey colour in Fig. (1). Most of the national parks and wildlife sanctuaries, forest areas, agricultural fields, human dwellings etc. of Karnataka still await intensive and extensive survey programmes to record a near complete spider fauna. Out of 39 families of spiders recorded, the largest family appeared in Karnataka is Araneidae (79 species, 28 genera) followed by Salticidae (72 species, 41 genera), Lycosidae (33 species, 9 genera), Thomisidae (32 species, 17 genera), and less than 30 species were represented by other 35 families (Table 5).

The spider fauna of Karnataka overlaps the fauna of neighbouring states, such as Andhra Pradesh (Singh & Sharma, 2022b), Goa (Singh & Singh, 2022a), Kerala (Sebastian *et al.*, 2012; Sumesh & Sudhikumar, 2020), Maharashtra (Tikader, 1974) and Tamil Nadu (Caleb & Karthikeyani, 2020). A perusal of checklists of spider fauna of different states reveals that the biodiversity of spiders in Karnataka is comparatively high. It ranks fourth in number of families after Uttarakhand, Odisha, and Gujarat; second in number of genera after Uttarakhand; and second in number of species after Gujarat (Table 6). No updated checklist is available for three states, Kerala, Maharashtra, and West Bengal having very high spider diversity.

Table 1. Species of spiders recorded in different districts of Karnataka.

Family/Species	Districts	References
<b>1. Agelenidae</b>		
<i>Tamgrinia alveolifera</i> (Schenkel, 1936)	Ballary	Tabasum <i>et al.</i> , 2018
<i>Tegenaria domestica</i> (Clerck, 1757)	Chikkamagaluru, Shivamogga	Prashanthakumara <i>et al.</i> , 2015; Somashekar <i>et al.</i> , 2020
<b>2. Araneidae</b>		
<i>Acusilas coccineus</i> Simon, 1895	Kodagu, Uttara Kannada	Sherriffs, 1928; Sankaran & Sebastian, 2018
<i>Anepsion maritatum</i> (O. Pickard-Cambridge, 1877)	Dakshina Kannada, Dharwad, Mysuru, Uttara Kannada	Bhat <i>et al.</i> , 2013; Vaibhav <i>et al.</i> , 2017; Abhijith, 2021; iNaturalist, 2022
<i>Arachnura angura</i> Tikader, 1970	Dakshina Kannada, Shivamogga	Bhat <i>et al.</i> , 2013; Prashanthakumara & Venkateshwarlu, 2017a
<i>Arachnura melanura</i> Simon, 1867	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Tumakuru	Padma & Sundarraj, 2021
<i>Araneus bilunifer</i> Pocock, 1900	Dakshina Kannada, Mysuru	Bhat <i>et al.</i> , 2013; Abhijith, 2021
<i>Araneus boernerii</i> (Strand, 1907)	Kodagu	Strand, 1907a
<i>Araneus decentellus</i> (Strand, 1907)	Kodagu	Strand, 1907a
<i>Araneus diadematus</i> Clerck, 1757	Ballary	Tabasum <i>et al.</i> , 2018
<i>Araneus nox</i> (Simon, 1877)	Kodagu	Sherriffs, 1929
<i>Araneus viridisomus</i> Gravely, 1921	Mysuru	Abhijith, 2021
<i>Araniella nympha</i> (Simon, 1889)	Bengaluru Urban, Chikkamagaluru, Dakshina Kannada, Shivamogga	Sundararaj, 2008; Bhat <i>et al.</i> , 2013
<i>Argiope aemula</i> (Walckenaer, 1841)	Belagavi, Bengaluru Urban, Dharwad, Koppal, Mysuru, Raichur, Tumakuru	Vijaykumar & Patil, 2004; Nalini Bai & Ravindranatha, 2012; Ramakrishnaiah <i>et al.</i> , 2014; Pawar & Ganesh, 2016; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Kokilamani <i>et al.</i> , 2019; Jalajakshi & Usha, 2019; Nijagal <i>et al.</i> , 2020; Shraddha & Chaturved, 2020; Abhijith, 2021; Sharma & Ramakrishna, 2021
<i>Argiope anasuja</i> Thorell, 1887	Ballary, Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru, Yadagiri	Pocock, 1900; Tikader, 1982; Nalini Bai & Ravindranatha, 2012; Jalajakshi & Vinutha, 2014; Ramakrishnaiah <i>et al.</i> , 2014; Almale, 2017; Pawar & Ganesh, 2016; Joshi & Venkateshwarlu, 2017; Murali <i>et al.</i> , 2017; Nautiyal <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a; Vaibhav <i>et al.</i> , 2017; Tabasum <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Shraddha



Family/Species	Districts	References
		& Chaturved, 2019, 2020; Jalajakshi & Usha, 2019; Nijagal <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020; Abhijith, 2021; Padma & Sundarraaj, 2021
<i>Argiope bruennichi</i> (Scopoli, 1772)	Uttara Kannada	Prasad <i>et al.</i> , 2010
<i>Argiope catenulata</i> (Doleschall, 1859)	Bengaluru Urban, Dakshina Kannada, Hassan, Mysuru	Mubeen & Basavarajappa, 2018; Fernandes & Ganesh, 2020; Nijagal <i>et al.</i> , 2020; iNaturalist, 2022
<i>Argiope lobata</i> (Pallas, 1772)	Bengaluru Urban	Pocock, 1900; Tikader, 1982
<i>Argiope minuta</i> Karsch, 1879	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Argiope pulchella</i> Thorell, 1881	Belagavi, Bengaluru Rural, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Patil <i>et al.</i> , 2006; Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Almale, 2017; Pawar & Ganesh, 2016; Joshi & Venkateshwarlu, 2017; Murali <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Rao <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Nijagal <i>et al.</i> , 2020; Shraddha & Chaturved, 2019, 2020; Somashekar <i>et al.</i> , 2020; Padma & Sundarraaj, 2021; Sharma & Ramakrishna, 2021
<i>Argiope taprobanica</i> Thorell, 1887	Dakshina Kannada, Kodagu	Strand, 1907a; Sherriffs, 1928
<i>Bijoaraneus mitificus</i> (Simon, 1886)	Bengaluru Rural, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kolar, Koppal, Mysuru, Tumakuru	Bhat <i>et al.</i> , 2013; Murali <i>et al.</i> , 2017; Abhijith, 2021; Padma & Sundarraaj, 2021; iNaturalist, 2022
<i>Cyclosa bifida</i> (Doleschall, 1859)	Bengaluru Urban, Chikkamagaluru, Kodagu, Mysuru, Shivamogga, Tumakuru	Sherriffs, 1928; Prashanthakumara & Venkateshwarlu, 2017b; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019; Nijagal <i>et al.</i> , 2020; Abhijith, 2021; Sharma & Ramakrishna, 2021
<i>Cyclosa confraga</i> (Thorell, 1892)	Bengaluru Urban, Tumakuru	Tikader, 1982; Kokilamani <i>et al.</i> , 2019; Sharma & Ramakrishna, 2021
<i>Cyclosa conica</i> (Pallas, 1772)	Belagavi, Chikkamagaluru	Pawar & Ganesh, 2016; Prashanthakumara & Venkateshwarlu, 2017b
<i>Cyclosa hexatuberculata</i> Tikader, 1982	Ballary, Bengaluru Urban, Yadagiri	Murali <i>et al.</i> , 2017; Nautiyal <i>et al.</i> , 2017; Tabasum <i>et al.</i> , 2018
<i>Cyclosa insulana</i> (Costa, 1834)	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kalaburagi, Kodagu, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Sherriffs, 1928; Prashanthakumara & Venkateshwarlu, 2017a; Nijagal <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020; Padma & Sundarraaj, 2021

Family/Species	Districts	References
<i>Cyclosa moonduensis</i> Tikader, 1963	Kalaburagi, Mysuru, Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a; Nijagal <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020
<i>Cyclosa mulmeinensis</i> (Thorell, 1887)	Kodagu, Yadagiri	Sherriffs, 1928; Nautiyal <i>et al.</i> , 2017
<i>Cyclosa quinqueguttata</i> (Thorell, 1881)	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Cyclosa spirifera</i> Simon, 1889	Bengaluru Urban	Nalini Bai & Ravindranatha, 2012
<i>Cyclosa tuberascens</i> Simon, 1906	Mysuru	Mubeen & Basavarajappa, 2018
<i>Cyrtarachne raniceps</i> Pocock, 1900	Chikkamagaluru, Dakshina Kannada	Tikader, 1963b, 1982; Bhat <i>et al.</i> , 2013
<i>Cyrtarachne sunjoymongai</i> Ahmed, Sumukha, Khalap, Mohan & Jadhav, 2015	Mysuru, Shivamogga	Ahmed <i>et al.</i> , 2015a; Abhijith, 2021
<i>Cyrtophora bidenta</i> Tikader, 1970	Chikkamagaluru	Prashanthakumara & Venkateshwarlu, 2017b
<i>Cyrtophora cicatrosa</i> (Stoliczka, 1869)	Ballary, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru, Uttara Kannada, Yadagiri	Pocock, 1900; Patil <i>et al.</i> , 2006; Nalini Bai & Ravindranatha, 2012; Nautiyal <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Tabasum <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019, 2020; Nijagal <i>et al.</i> , 2020; Abhijith, 2021; Padma & Sundarraj, 2021; Sharma & Ramakrishna, 2021
<i>Cyrtophora citricola</i> (Forskål, 1775)	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Uttara Kannada, Tumakuru	Pocock, 1900; Tikader, 1982; Tikader & Biswas, 1981; Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Murali <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Prashanthakumara & Venkateshwarlu, 2017a, b; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019, 2020; Jalajakshi & Usha, 2019; Nijagal <i>et al.</i> , 2020; Somashekar <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020; Padma & Sundarraj, 2021
<i>Cyrtophora ksudra</i> Sherriffs, 1928	Kodagu	Sherriffs, 1928
<i>Cyrtophora moluccensis</i> (Doleschall, 1857)	Bengaluru Urban, Kodagu, Tumakuru	Tikader, 1982; Ramakrishnaiah <i>et al.</i> , 2014; Kokilamani <i>et al.</i> , 2019; Sharma & Ramakrishna, 2021
<i>Cyrtophora unicolor</i> (Doleschall, 1857)	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Eriovixia excelsa</i> (Simon, 1889)	Kalaburagi, Mysuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Nijagal <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020; Abhijith, 2021
<i>Eriovixia gryffindori</i> Ahmed, Khalap &	Mysuru, Shivamogga, Udupi	Ahmed <i>et al.</i> , 2016; Abhijith, 2021; iNaturalist, 2022



Family/Species	Districts	References
Sumukha, 2016		
<i>Eriovixia laglaizei</i> (Simon, 1877)	Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kolar, Koppal, Ramanagara, Tumakuru	Bhat <i>et al.</i> , 2013; Pawar & Ganesh, 2016; Padma & Sundarraj, 2021; iNaturalist, 2022
<i>Eriovixia poonaensis</i> (Tikader & Bal, 1981)	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Gasteracantha cancriformis</i> (Linnaeus, 1758)	Tumakuru	Kokilamani <i>et al.</i> , 2019
<i>Gasteracantha dalyi</i> Pocock, 1900	Bengaluru Urban, Chikkamagaluru, Hassan, Kodagu, Uttara Kannada	Ramakrishnaiah <i>et al.</i> , 2014; iNaturalist, 2022
<i>Gasteracantha geminata</i> (Fabricius, 1798)	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kodagu, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Sherriffs, 1929; Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Joshi & Venkateshwarlu, 2017; Almale, 2017; Prashanthakumara & Venkateshwarlu, 2017a; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Rao <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019, 2020; Jalajakshi & Usha, 2019; Nijagal <i>et al.</i> , 2020; Somashekar <i>et al.</i> , 2020; Abhijith, 2021; Abhijith, 2021; Padma & Sundarraj, 2021
<i>Gasteracantha kuhli</i> C.L. Koch, 1837	Bengaluru Urban, Chikkamagaluru, Mysuru, Uttara Kannada	Ramakrishnaiah <i>et al.</i> , 2014; Prashanthakumara & Venkateshwarlu, 2017b; Abhijith, 2021; iNaturalist, 2022
<i>Gasteracantha sororna</i> Butler, 1873	Kodagu	Sherriffs, 1929
<i>Gea spinipes</i> C.L. Koch, 1843	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Gea subarmata</i> Thorell, 1890	Mysuru	Nijagal <i>et al.</i> , 2020
<i>Gibbaranea bituberculata</i> (Walckenaer, 1802)	Dakshina Kannada, Yadagiri	Bhat <i>et al.</i> , 2013; Nautiyal <i>et al.</i> , 2017
<i>Herennia multipuncta</i> (Doleschall, 1859)	Belagavi, Bengaluru Urban, Chikkamagaluru, Dakshina Kannada, Dharwad, Kodagu, Mysuru, Ramanagara	Bhat <i>et al.</i> , 2013; Pawar & Ganesh, 2016; Prashanthakumara & Venkateshwarlu, 2017b; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Fernandes & Ganesh, 2020; Somashekar <i>et al.</i> , 2020; Sharma & Ramakrishna, 2021; iNaturalist, 2022
<i>Hypsosinga satpuraensis</i> Bodkhe, Uniyal & Kamble, 2016	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Larinia chloris</i> (Savigny, 1825)	Mysuru	Mubeen & Basavarajappa, 2018
<i>Macracantha hasselti</i> (C. L. Koch, 1837)	Belagavi, Dharwad, Mysuru, Uttara Kannada	Pawar & Ganesh, 2016; Vaibhav <i>et al.</i> , 2017; Mubeen &

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		Basavarajappa, 2018; Abhijith, 2021; iNaturalist, 2022
<i>Neogea nocticolor</i> (Thorell, 1887)	Kodagu, Mysuru, Shivamogga	Sherriffs, 1928; Tikader, 1982; iNaturalist, 2022
<i>Neoscona achine</i> (Simon, 1906)	Bengaluru Urban	Murali <i>et al.</i> , 2017
<i>Neoscona bengalensis</i> Tikader & Bal, 1981	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Mysuru, Tumakuru	Nijagal <i>et al.</i> , 2020; Padma & Sundarraj, 2021
<i>Neoscona crucifera</i> (Lucas, 1838)	Bengaluru Urban, Mysuru, Shivamogga	Shraddha & Chaturved, 2019; Jalajakshi & Usha, 2019; Nijagal <i>et al.</i> , 2020
<i>Neoscona inusta</i> (L. Koch, 1871)	Tumakuru	Kokilamani <i>et al.</i> , 2019
<i>Neoscona molemensis</i> Tikader & Bal, 1981	Bengaluru Urban, Kalaburagi, Mysuru	Deshpande & Paul, 2016; Abhijith, 2021; Sharma & Ramakrishna, 2021
<i>Neoscona mukerjei</i> Tikader, 1980	Bengaluru Rural, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru, Yadagiri	Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Joshi & Venkateshwarlu, 2017; Almale, 2017; Murali <i>et al.</i> , 2017; Nautiyal <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a, b; Mubeen & Basavarajappa, 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2020; Somashekar <i>et al.</i> , 2020; Padma & Sundarraj, 2021
<i>Neoscona nautica</i> (L. Koch, 1875)	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Nalini Bai & Ravindranatha, 2012; Ramakrishnaiah <i>et al.</i> , 2014; Deshpande & Paul, 2016; Joshi & Venkateshwarlu, 2017; Prashanthakumara & Venkateshwarlu, 2017b; Almale, 2017; Prashanthakumara & Venkateshwarlu, 2017a; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019; Nijagal <i>et al.</i> , 2020; Somashekar <i>et al.</i> , 2020; Padma & Sundarraj, 2021
<i>Neoscona odites</i> (Simon, 1906)	Bengaluru Urban, Kalaburagi	Deshpande & Paul, 2016; Sharma & Ramakrishna, 2021
<i>Neoscona pavida</i> (Simon, 1906)	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Neoscona punctigera</i> (Doleschall, 1857)	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Mysuru, Tumakuru	Shraddha & Chaturved, 2020; Abhijith, 2021; Abhijith, 2021; Padma & Sundarraj, 2021
<i>Neoscona scylla</i> (Karsch, 1879)	Tumakuru	Kokilamani <i>et al.</i> , 2019
<i>Neoscona theisi</i> (Walckenaer, 1841)	Dakshina Kannada, Kalaburagi, Koppal, Raichur, Yadagiri	Vijaykumar & Patil, 2004, 2006; Joshi & Venkateshwarlu, 2017; Almale, 2017; Nautiyal <i>et al.</i> , 2017; Talwar <i>et al.</i> , 2020
<i>Neoscona vigilans</i>	Bengaluru Urban, Kodagu	Pocock, 1900; Strand, 1907a;



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(Blackwall, 1865)		Tikader & Bal, 1981; Tikader & Biswas, 1981; Tikader, 1982; Sundararaj, 2008
<i>Nephila pilipes</i> (Fabricius, 1793)	Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Uttara Kannada, Tumakuru	Pocock, 1900; Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Chakravarthy <i>et al.</i> , 2014; Ramakrishnaiah <i>et al.</i> , 2014; Pawar & Ganesh, 2016; Prashanthakumara & Venkateshwarlu, 2017a, b; Vaibhav <i>et al.</i> , 2017; Rao <i>et al.</i> , 2018; Jalajakshi & Usha, 2019; Somashekar <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020; Abhijith, 2021; Padma & Sundarraj, 2021; Sharma & Ramakrishna, 2021
<i>Nephilengys malabarensis</i> (Walckenaer, 1841)	Chikkamagaluru, Dakshina Kannada, Mysuru, Shivamogga	Strand, 1907a; Prashanthakumara & Venkateshwarlu, 2017a, b; Mubeen & Basavarajappa, 2018; Abhijith, 2021
<i>Ordgarius hobsoni</i> (O. Pickard-Cambridge, 1877)	Shivamogga	iNaturalist, 2022
<i>Ordgarius sexspinosus</i> (Thorell, 1894)	Mysuru	Abhijith, 2021
<i>Paraplectana rajashree</i> Ahmed, Sumukha, Khalap, Mohan & Jadhav, 2015	Shivamogga	Ahmed <i>et al.</i> , 2015b
<i>Parawixia dehaani</i> (Doleschall, 1859)	Bengaluru Urban, Chikkamagaluru, Dakshina Kannada, Mysuru, Shivamogga, Uttara Kannada, Tumakuru	Pocock, 1900; Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Prashanthakumara & Venkateshwarlu, 2017a, b; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019; Nijagal <i>et al.</i> , 2020; Sharma & Ramakrishna, 2021
<i>Pasilobus kotigeharus</i> Tikader, 1963	Chikkamagaluru	Tikader, 1963c
<i>Plebs himalayaensis</i> (Tikader, 1975)	Dharwad	Vaibhav <i>et al.</i> , 2017
<i>Porcataraneus bengalensis</i> (Tikader, 1975)	Dharwad	Vaibhav <i>et al.</i> , 2017
<i>Thelacantha brevispina</i> (Doleschall, 1857)	Ballary, Belagavi, Bengaluru Urban, Dakshina Kannada, Kodagu, Mysuru, Shivamogga, Tumakuru	Sherriffs, 1929; Bhat <i>et al.</i> , 2013; Pawar & Ganesh, 2016; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019; Abhijith, 2021; iNaturalist, 2022
<i>Trichonephila clavata</i> (L. Koch, 1878)	Bengaluru Urban	Sharma & Ramakrishna, 2021
<b>3. Barychelidae</b>		
<i>Tigidia sahyadri</i> Siliwal, Gupta & Raven, 2011	Uttara Kannada	Siliwal <i>et al.</i> , 2011a, b
<b>4. Cheiracanthiidae</b>		
<i>Cheiracanthium danieli</i>	Bengaluru Urban, Yadagiri	Murali <i>et al.</i> , 2017; Nautiyal <i>et al.</i> ,

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Tikader, 1975		2017; Jalajakshi & Usha, 2019
<i>Cheiracanthium indicum</i> O. Pickard-Cambridge, 1874	Belagavi	Pawar & Ganesh, 2016
<i>Cheiracanthium melanostomum</i> (Thorell, 1895)	Belagavi, Bengaluru Urban, Bengaluru Rural, Chamarajanagara, Chikkaballapura, Dakshina Kannada, Mysuru, Shivamogga	Gravely, 1931; Majumder & Tikader, 1991; Sundararaj, 2008; Bhat <i>et al.</i> , 2013; Murali <i>et al.</i> , 2017; Nijagal <i>et al.</i> , 2020
<i>Cheiracanthium mysorens</i> Majumder & Tikader, 1991	Uttara Kannada	Majumder & Tikader, 1991
<i>Cheiracanthium saraswatii</i> Tikader, 1962	Yadagiri	Nautiyal <i>et al.</i> , 2017
<b>5. Clubionidae</b>		
<i>Clubiona drassodes</i> O. Pickard-Cambridge, 1874	Belagavi, Mysuru	Majumder & Tikader, 1991; Mubeen & Basavarajappa, 2018
<i>Clubiona ludhianaensis</i> Tikader, 1976	Bengaluru Urban, Mandya	Venkateshalu <i>et al.</i> , 2009
<i>Simalio biswasi</i> Majumder & Tikader, 1991	Mysuru	Majumder & Tikader, 1991
<b>6. Corinnidae</b>		
<i>Aetius decollatus</i> O. Pickard-Cambridge, 1897	Mandya	iNaturalist, 2022
<i>Apochinomma nitidum</i> (Thorell, 1895)	Mysuru	Mubeen & Basavarajappa, 2018
<i>Cambalida deorsa</i> Murthappa, Prajapati, Sankaran & Sebastian, 2016	Shivamogga	Murthappa <i>et al.</i> , 2016
<i>Cambalida flavipes</i> (Gravely, 1931)	Bengaluru Urban	Gravely, 1931; Tikader, 1981; Majumder & Tikader, 1991
<i>Castianeira zetes</i> Simon, 1897	Belagavi, Bengaluru Urban, Dakshina Kannada, Kalaburagi, Mysuru, Shivamogga	Gravely, 1931; Tikader, 1981; Tikader & Biswas, 1981; Bhat <i>et al.</i> , 2013; Pawar & Ganesh, 2016; Prashanthakumara & Venkateshwarlu, 2017a; Mubeen & Basavarajappa, 2018; Shraddha & Chaturved, 2019; Fernandes & Ganesh, 2020; Nijagal <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020
<i>Coenoptychus pulcher</i> Simon, 1885	Mysuru	Abhijith, 2021
<i>Corinnomma severum</i> (Thorell, 1877)	Koppal, Raichur	Vijaykumar & Patil, 2004, 2006
<b>7. Ctenidae</b>		
<i>Ctenus cochinensis</i> Gravely, 1931	Bengaluru Urban, Dharwad	Nalini Bai & Ravindranatha, 2012; Vaibhav <i>et al.</i> , 2017; Fernandes & Ganesh, 2020
<b>8. Deinopidae</b>		
<i>Asianopis goalparaensis</i> (Tikader & Malhotra,	Ballary, Bengaluru Urban	Nalini Bai & Ravindranatha, 2012;



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1978)		Tabasum <i>et al.</i> , 2018
<b>9. Dictynidae</b>		
<i>Ajmonia marakata</i> (Sherriffs, 1927)	Chikkamagaluru	Tikader, 1966
<b>10. Eresidae</b>		
<i>Stegodyphus pacificus</i> Pocock, 1900	Bengaluru Rural	iNaturalist, 2022
<i>Stegodyphus sarasinorum</i> Karsch, 1892	Bengaluru Urban, Dakshina Kannada, Koppal, Mysuru, Raichur, Shivamogga, Tumakuru, Yadagiri	Sherriffs, 1927; Tikader & Biswas, 1981; Vijaykumar & Patil, 2004; Patil <i>et al.</i> , 2006; Nalini Bai & Ravindranatha, 2012; Ramakrishnaiah <i>et al.</i> , 2014; Nautiyal <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Shraddha & Chaturved, 2019, 2020; Abhijith, 2021
<i>Stegodyphus tibialis</i> (O. Pickard-Cambridge, 1869)	Bengaluru Urban, Mysuru, Tumakuru	Pickard-Cambridge, 1869; Pocock, 1900; Kraus & Kraus, 1989; Gajbe, 2004b; Abhijith, 2021; iNaturalist, 2022
<b>11. Filistatidae</b>		
<i>Labahitha insularis</i> (Thorell, 1891)	Belagavi	Pawar & Ganesh, 2016
<b>12. Gnaphosidae</b>		
<i>Aphantaulax trifasciata</i> (O. Pickard-Cambridge, 1872)	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Callilepis lambai</i> Tikader & Gajbe, 1977	Shivamogga	Tikader & Gajbe, 1977; Gajbe, 2005
<i>Drassodes luridus</i> (O. Pickard-Cambridge, 1874)	Ballary	Tabasum <i>et al.</i> , 2018
<i>Drassodes sagarensis</i> Tikader, 1982	Mysuru	Tikader, 1982
<i>Gnaphosa sticta</i> Kulczyński, 1908	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Heser vijayanagara</i> Bosselaers, 2010	Vijayanagara	Bosselaers, 2010
<i>Hitobia singhi</i> (Tikader & Gajbe, 1976)	Tumakuru	Tikader & Gajbe, 1976; Gajbe, 2005
<i>Poecilochroa barmani</i> Tikader, 1982	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Poecilochroa kuljitae</i> (Tikader, 1982)	Dakshina Kannada	Tikader, 1982
<i>Scotophaeus blackwalli</i> (Thorell, 1871)	Belagavi	Pawar & Ganesh, 2016
<i>Scotophaeus merkaricola</i> Strand, 1907	Kodagu	Strand, 1907a, 1909
<i>Setaphis subtilis</i> (Simon, 1897)	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Zelotes sataraensis</i> Tikader	Belagavi	Gajbe, 1988

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& Gajbe, 1979		
<b>13. Hersiliidae</b>		
<i>Hersilia savignyi</i> Lucas, 1836	Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kalaburagi, Kodagu, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru, Yadagiri	Sherriffs, 1927; Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Pawar & Ganesh, 2016; Deshpande & Paul, 2016; Joshi & Venkateshwarlu, 2017; Nautiyal <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a; Vaibhav <i>et al.</i> , 2017; Rao <i>et al.</i> , 2018; Shraddha & Chaturved, 2019, 2020; Fernandes & Ganesh, 2020; Nijagal <i>et al.</i> , 2020; Abhijith, 2021; Somashekar <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020; Padma & Sundarraj, 2021
<i>Hersilia scrupulosa</i> Foord & Dippenaar-Schoeman, 2006	Kalaburagi	Talwar <i>et al.</i> , 2019, 2020
<i>Hersilia sumatrana</i> (Thorell, 1890)	Mysuru	Mubeen & Basavarajappa, 2018
<i>Hersilia tibialis</i> M. Baehr & B. Baehr, 1993	Kodagu, Mysuru	Sinha, 1951; Abhijith, 2021
<b>14. Idiopidae</b>		
<i>Idiops joida</i> Gupta, Das & Siliwal, 2013	Uttara Kannada	Gupta <i>et al.</i> , 2013, 2015
<i>Titanidiops constructor</i> (Pocock, 1900)	Belagavi	Pawar & Ganesh, 2016
<b>15. Ischnothelidae</b>		
<i>Indothele dumicola</i> (Pocock, 1900)	Kalaburagi	Talwar <i>et al.</i> , 2020
<b>16. Linyphiidae</b>		
<i>Linyphia hortensis</i> Sundevall, 1830	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Nerienne macella</i> (Thorell, 1898)	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Nerienne sundaica</i> (Simon, 1905)	Mysuru, Shivamogga	Mubeen & Basavarajappa, 2018; Shraddha & Chaturved, 2019
<b>17. Liocranidae</b>		
<i>Oedignatha albofasciata</i> Strand, 1907	Kodagu	Strand, 1907b, 1909; Majumder & Tikader, 1991
<i>Oedignatha andamanensis</i> (Tikader, 1977)	Mysuru	Nijagal <i>et al.</i> , 2020
<i>Oedignatha scrobiculata</i> Thorell, 1881	Bengaluru Urban, Dakshina Kannada, Udupi	Gravelly, 1931
<i>Sphingius barkudensis</i> Gravelly, 1931	Bengaluru Urban	Gravelly, 1931
<b>18. Lycosidae</b>		



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<i>Draposa atropalpis</i> (Gravely, 1924)	Bengaluru Urban, Chamarajanagara, Kalaburagi	Gravely, 1924; Tikader & Malhotra, 1980; Deshpande & Paul, 2016
<i>Draposa oakleyi</i> (Gravely, 1924)	Kalaburagi, Shivamogga; Yadagiri	Tikader & Biswas, 1981; Nautiyal <i>et al.</i> , 2017; Talwar <i>et al.</i> , 2020
<i>Geolycosa carli</i> (Reimoser, 1934)	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Hippasa agelenoides</i> (Simon, 1884)	Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dharwad, Dakshina Kannada, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Tikader & Malhotra, 1980; Gajbe, 2004a; Nalini Bai & Ravindranatha, 2012; Ramakrishnaiah <i>et al.</i> , 2014; Pawar & Ganesh, 2016; Deshpande & Paul, 2016; Prashanthakumara & Venkateshwarlu, 2017a, b; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Rao <i>et al.</i> , 2018; Shraddha & Chaturved, 2019; Jalajakshi & Usha, 2019; Nijagal <i>et al.</i> , 2020; Padma & Sundarraj, 2021; Sharma & Ramakrishna, 2021
<i>Hippasa greenalliae</i> (Blackwall, 1867)	Belagavi, Bengaluru Urban, Dharwad, Mysuru	Pocock, 1900; Tikader & Malhotra, 1980; Pawar & Ganesh, 2016; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Sharma & Ramakrishna, 2021
<i>Hippasa himalayensis</i> Gravely, 1924	Karnataka	Saha <i>et al.</i> , 2016
<i>Hippasa holmerae</i> Thorell, 1895	Kalaburagi	Deshpande & Paul, 2016; Talwar <i>et al.</i> , 2020
<i>Hippasa lycosina</i> Pocock, 1900	Dakshina Kannada, Uttara Kannada	Pocock, 1900
<i>Hippasa pisaurina</i> Pocock, 1900	Bengaluru Urban, Mandya, Yadagiri	Pocock, 1900; Gravely, 1924; Tikader & Malhotra, 1980; Nautiyal <i>et al.</i> , 2017
<i>Lycosa bistrata</i> Gravely, 1924	Bengaluru Urban, Mandya, Yadagiri	Gravely, 1924; Nautiyal <i>et al.</i> , 2017
<i>Lycosa fuscana</i> Pocock, 1901	Belagavi	Pawar & Ganesh, 2016
<i>Lycosa indagatrix</i> Walckenaer, 1837	Bengaluru Urban, Mysuru	Gravely, 1924
<i>Lycosa mackenziei</i> Gravely, 1924	Bengaluru Urban, Dharwad	Gravely, 1924; Tikader & Biswas, 1981; Tikader & Malhotra, 1980; Vaibhav <i>et al.</i> , 2017; Fernandes & Ganesh, 2020
<i>Lycosa madani</i> Pocock, 1901	Bengaluru Urban, Yadagiri	Gravely, 1924; Nautiyal <i>et al.</i> , 2017
<i>Lycosa nigrotibialis</i> Simon, 1884	Kodagu	Strand, 1909
<i>Lycosa phipsoni</i> Pocock, 1899	Dakshina Kannada, Uttara Kannada	Pocock, 1900
<i>Lycosa pictula</i> Pocock, 1901	Yadagiri	Nautiyal <i>et al.</i> , 2017

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<i>Lycosa prolifica</i> Pocock, 1901	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Lycosa tista</i> Tikader, 1970	Bengaluru Urban, Mysuru	Ramakrishnaiah <i>et al.</i> , 2014; Mubeen & Basavarajappa, 2018; Fernandes & Ganesh, 2020
<i>Pardosa altitudis</i> Tikader & Malhotra, 1980	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Pardosa gopalai</i> Patel & Reddy, 1993	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Pardosa heterophthalma</i> (Simon, 1898)	Koppal, Raichur, Uttara Kannada	Vijaykumar & Patil, 2004, 2006; Prasad <i>et al.</i> , 2010
<i>Pardosa pseudoannulata</i> (Bösenberg & Strand, 1906)	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dharwad, Kolar, Koppal, Mandya, Mysuru, Shivamogga, Tumakuru, Uttara Kannada, Yadagiri	Gravely, 1924; Tikader & Malhotra, 1980; Prasad <i>et al.</i> , 2010; Nalini Bai & Ravindranatha, 2012; Murali <i>et al.</i> , 2017; Nautiyal <i>et al.</i> , 2017; Parasappa <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Fernandes & Ganesh, 2020; Nijagal <i>et al.</i> , 2020; Padma & Sundarraj, 2021
<i>Pardosa pusiola</i> (Thorell, 1891)	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Pardosa shyamae</i> (Tikader, 1970)	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Pardosa songosa</i> Tikader & Malhotra, 1976	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Pardosa sumatrana</i> (Thorell, 1890)	Bengaluru Urban, Chamarajanagara, Dharwad, Mandya, Yadagiri	Tikader & Mukerji, 1971, 1980; Gajbe, 2004a; Venkateshalu <i>et al.</i> , 2009; Nautiyal <i>et al.</i> , 2017; Vaibhav <i>et al.</i> , 2017
<i>Serratacosa himalayensis</i> (Gravely, 1924)	Karnataka	Sen <i>et al.</i> , 2015
<i>Trochosa punctipes</i> (Gravely, 1924)	Bengaluru Urban	Gravely, 1924; Tikader & Malhotra, 1980
<i>Wadicosa fidelis</i> (O. Pickard-Cambridge, 1872)	Bengaluru Urban, Dharwad, Mandya, Yadagiri	Gravely, 1924; Venkateshalu <i>et al.</i> , 2009; Nautiyal <i>et al.</i> , 2017; Vaibhav <i>et al.</i> , 2017; Fernandes & Ganesh, 2020
<i>Wadicosa ghatika</i> Kronestedt, 2017	Shivamogga	Kronestedt, 2017
<i>Wadicosa quadrifera</i> (Gravely, 1924)	Bengaluru Urban	Gravely, 1924; Tikader & Malhotra, 1980
<b>19. Oecobiidae</b>		
<i>Oecobius marathaus</i> Tikader, 1962	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Uroctea indica</i> Pocock, 1900	Kalaburagi	Talwar <i>et al.</i> , 2020
<b>20. Oonopidae</b>		
<i>Brignolia jog</i> Platnick, Dupérré, Ott & Kranz-	Shivamogga	Platnick <i>et al.</i> , 2011



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Baltensperger, 2011 <i>Brignolia karnataka</i> Platnick, Dupérré, Ott & Kranz-Baltensperger, 2011	Shivamogga	Platnick <i>et al.</i> , 2011
<i>Pelcinus madurai</i> Platnick, Dupérré, Ott, Baehr & Kranz- Baltensperger, 2012	Shivamogga	Platnick <i>et al.</i> , 2012
<b>21. Oxyopidae</b>		
<i>Oxyopes assamensis</i> Tikader, 1969	Bengaluru Rural, Bengaluru Urban, Chikkaballapura	Murali <i>et al.</i> , 2017
<i>Oxyopes bharatae</i> Gajbe, 1999	Mysuru	Mubeen & Basavarajappa, 2018
<i>Oxyopes birmanicus</i> Thorell, 1887	Ballary, Belagavi, Bengaluru Rural, Bengaluru Urban, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kalaburagi, Mandya, Mysuru, Shivamogga	Sundararaj, 2008; Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Deshpande & Paul, 2016; Pawar & Ganesh, 2016; Joshi & Venkateshwarlu, 2017; Almale, 2017; Murali <i>et al.</i> , 2017; Parasappa <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Tabasum <i>et al.</i> , 2018; Fernandes & Ganesh, 2020; Sharma & Ramakrishna, 2021
<i>Oxyopes hindostanicus</i> Pocock, 1901	Bengaluru Urban, Mandya, Yadagiri	Venkateshalu <i>et al.</i> , 2009; Nautiyal <i>et al.</i> , 2017
<i>Oxyopes javanus</i> Thorell, 1887	Bengaluru Rural, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Deshpande & Paul, 2016; Murali <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a, b; Mubeen & Basavarajappa, 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019, 2020; Fernandes & Ganesh, 2020; Nijagal <i>et al.</i> , 2020; Padma & Sundarraj, 2021
<i>Oxyopes kohaensis</i> Bodkhe & Vankhede, 2012	Bengaluru Urban, Kalaburagi, Mysuru	Mouly <i>et al.</i> , 2018; Talwar <i>et al.</i> , 2020; Abhijith, 2021
<i>Oxyopes lineatipes</i> (C.L. Koch, 1847)	Bengaluru Urban, Chikkamagaluru, Dakshina Kannada, Mysuru, Shivamogga	Prashanthakumara <i>et al.</i> , 2015; Murali <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017b; Rao <i>et al.</i> , 2018; Fernandes & Ganesh, 2020; Nijagal <i>et al.</i> , 2020; Sharma & Ramakrishna, 2021
<i>Oxyopes rukminiae</i> Gajbe, 1999	Bengaluru Urban, Uttara Kannada	Gajbe, 1999; Murali <i>et al.</i> , 2017
<i>Oxyopes shweta</i> Tikader 1970	Bengaluru Urban, Chikkamagaluru, Dakshina Kannada, Mysuru, Tumakuru	Patil <i>et al.</i> , 2006; Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Joshi & Venkateshwarlu, 2017; Almale, 2017; Murali <i>et al.</i> , 2017; Mubeen

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		& Basavarajappa, 2018; Rao <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Nijagal <i>et al.</i> , 2020; Shraddha & Chaturved, 2020; Somashekar <i>et al.</i> , 2020; Abhijith, 2021
<i>Oxyopes sunandae</i> Tikader 1970	Dakshina Kannada, Mysuru, Shivamogga	Bhat <i>et al.</i> , 2013; Joshi & Venkateshwarlu, 2017; Almale, 2017; Mubeen & Basavarajappa, 2018; Shraddha & Chaturved, 2019
<i>Peucetia viridana</i> (Stoliczka, 1869)	Ballary, Bengaluru Rural, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru, Yadagiri	Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Deshpande & Paul, 2016; Joshi & Venkateshwarlu, 2017; Almale, 2017; Murali <i>et al.</i> , 2017; Nautiyal <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Tabasum <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Nijagal <i>et al.</i> , 2020; Shraddha & Chaturved, 2019, 2020; Padma & Sundarraj, 2021
<i>Peucetia yogeshi</i> Gajbe, 1999	Kalaburagi	Talwar <i>et al.</i> , 2020
<b>22. Philodromidae</b>		
<i>Apollophanes bangalores</i> Tikader, 1963	Bengaluru Urban	Tikader, 1963a, 1971a
<i>Philodromus shillongensis</i> Tikader, 1962	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Psellonus planus</i> Simon, 1897	Belagavi, Bengaluru Urban, Chamarajanagara	Tikader, 1971; iNaturalist, 2022
<i>Thanatus stripatus</i> Tikader, 1980	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Tibellus elongatus</i> Tikader, 1960	Bengaluru Urban, Mysuru	Ramakrishnaiah <i>et al.</i> , 2014; Mubeen & Basavarajappa, 2018
<i>Tibellus pashanensis</i> Tikader, 1980	Koppal, Raichur, Uttara Kannada	Prasad <i>et al.</i> , 2010; Vijaykumar & Patil, 2004, 2006
<i>Tibellus pateli</i> Tikader, 1980	Bengaluru Urban, Mandya	Venkateshalu <i>et al.</i> , 2009
<b>23. Pholcidae</b>		
<i>Artema atlanta</i> Walckenaer, 1837	Ballary, Bengaluru Urban, Dakshina Kannada, Dharwad	Sherriffs, 1927; Nalini Bai & Ravindranatha, 2012; Vaibhav <i>et al.</i> , 2017; Tabasum <i>et al.</i> , 2018
<i>Crossopriza lyoni</i> (Blackwall, 1867)	Ballary, Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru, Yadagiri	Patil <i>et al.</i> , 2006; Sundararaj, 2008; Nalini Bai & Ravindranatha, 2012; Ramakrishnaiah <i>et al.</i> , 2014; Deshpande & Paul, 2016; Pawar & Ganesh, 2016; Nautiyal <i>et al.</i> , 2017; Vaibhav <i>et al.</i> , 2017; Tabasum <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019, 2020; Somashekar <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020; Padma & Sundarraj, 2021; Huber, 2022



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<i>Leptopholcus kandy</i> Huber, 2011	Shivamogga	Huber, 2011
<i>Micropholcus fauroti</i> (Simon, 1887)	Bengaluru Urban	Huber, 2011
<i>Pholcus fragillimus</i> Strand, 1907	Chikkamagaluru, Kalaburagi, Mysuru, Uttara Kannada	Huber, 2011; Somashekar <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020
<i>Pholcus phalangioides</i> (Fuesslin, 1775)	Ballary, Belagavi, Bengaluru Urban, Dakshina Kannada, Dharwad, Shivamogga, Tumakuru	Patil <i>et al.</i> , 2006; Nalini Bai & Ravindranatha, 2012; Prashanthakumara <i>et al.</i> , 2015; Pawar & Ganesh, 2016; Vaibhav <i>et al.</i> , 2017; Rao <i>et al.</i> , 2018; Tabasum <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Sharma & Ramakrishna, 2021
<i>Pribumia atrigularis</i> (Simon, 1901)	Dakshina Kannada, Dharwad	Bhat <i>et al.</i> , 2013; Vaibhav <i>et al.</i> , 2017
<i>Smeringopus pallidus</i> (Blackwall, 1858)	Belagavi, Bengaluru Urban, Kodagu, Tumakuru	Sherriffs, 1927; Pawar & Ganesh, 2016; Kokilamani <i>et al.</i> , 2019; Fernandes & Ganesh, 2020
<b>24. Pisauridae</b>		
<i>Dendrolycosa gitae</i> (Tikader, 1970)	Dakshina Kannada, Koppal, Raichur	Vijaykumar & Patil, 2004, 2006; Bhat <i>et al.</i> , 2013
<i>Eucamptopus coronatus</i> Pocock, 1900	Mysuru	Abhijith, 2021
<i>Nilus albocinctus</i> (Doleschall, 1859)	Belagavi, Dakshina Kannada, Dharwad	Pawar & Ganesh, 2016; Joshi & Venkateshwarlu, 2017; Vaibhav <i>et al.</i> , 2017
<i>Perenethis venusta</i> L. Koch, 1878	Bengaluru Urban, Chikkamagaluru, Dakshina Kannada, Dharwad, Kalaburagi	Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Joshi & Venkateshwarlu, 2017; Vaibhav <i>et al.</i> , 2017; Somashekar <i>et al.</i> , 2020
<b>25. Salticidae</b>		
<i>Aelurillus kronestedti</i> Azarkina, 2004	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Asemonea tenuipes</i> (O. Pickard-Cambridge, 1869)	Dakshina Kannada, Mysuru, Shivamogga	Bhat <i>et al.</i> , 2013; Prashanthakumara <i>et al.</i> , 2015; Abhijith, 2021
<i>Bavia kairali</i> Samson & Sebastian, 2002	Dakshina Kannada, Dharwad, Shivamogga	Bhat <i>et al.</i> , 2013; Joshi & Venkateshwarlu, 2017; Almale, 2017; Vaibhav <i>et al.</i> , 2017; Shraddha & Chaturved, 2019
<i>Bianor angulosus</i> (Karsch, 1879)	Bengaluru Urban	Logunov, 2001
<i>Bianor balius</i> Thorell, 1890	Bengaluru Urban	Logunov, 2001
<i>Bianor narmadaensis</i> (Tikader, 1975)	Bengaluru Urban, Mandya	Venkateshalu <i>et al.</i> , 2009
<i>Bianor pashanensis</i> (Tikader, 1975)	Bengaluru Urban, Mandya	Venkateshalu <i>et al.</i> , 2009
<i>Brettus cingulatus</i> Thorell, 1895	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad,	Bhat <i>et al.</i> , 2013; Sekar, 2013; Ahmed <i>et al.</i> , 2017; Vaibhav <i>et al.</i> , 2017; Abhijith & Hill, 2019a;

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	Hassan, Kodagu, Kolar, Koppal, Mysuru, Shivamogga, Uttara Kannada	Abhijith, 2021; Padma & Sundarraaj, 2021; iNaturalist, 2022
<i>Burmattus pococki</i> (Thorell, 1895)	Mysuru	Abhijith, 2021
<i>Carrhotus silanthi</i> Caleb, 2020	Mandya	iNaturalist, 2022
<i>Carrhotus viduus</i> (C.L. Koch, 1846)	Belagavi, Bengaluru Rural, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Murali <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Rao <i>et al.</i> , 2018; Shraddha & Chaturved, 2019, 2020; Abhijith, 2021; Hill <i>et al.</i> , 2021; Padma & Sundarraaj, 2021; iNaturalist, 2022
<i>Chalcotropis pennata</i> Simon, 1902	Bengaluru Urban, Mysuru	Murali <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018
<i>Chrysilla acerosa</i> Wang & Zhang, 2012	Mysuru	Abhijith, 2021
<i>Chrysilla lauta</i> Thorell, 1887	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Chrysilla volupe</i> (Karsch, 1879)	Belagavi, Bengaluru Urban, Mysuru, Shivamogga	Caleb <i>et al.</i> , 2018; Shraddha & Chaturved, 2019; Abhijith, 2021; iNaturalist, 2022
<i>Colaxes sazailus</i> Paul, Prajapati, Joseph & Sebastian, 2020	Chikkamagaluru	Paul <i>et al.</i> , 2020
<i>Curubis tetrica</i> Simon, 1902	Hassan, Mysuru	Abhijith, 2021; iNaturalist, 2022
<i>Cyrba ocellata</i> (Kroneberg, 1875)	Kalaburagi, Mysuru, Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a; Talwar <i>et al.</i> , 2017, 2020; Majagi <i>et al.</i> , 2018; Abhijith, 2021
<i>Epeus indicus</i> Prószyński, 1992	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Prashanthakumara & Venkateshwarlu, 2017a; Shraddha & Chaturved, 2019, 2020; Abhijith, 2021; Padma & Sundarraaj, 2021
<i>Epeus tener</i> (Simon, 1877)	Dakshina Kannada	Bhat <i>et al.</i> , 2013; Prashanthakumara & Venkateshwarlu, 2017a
<i>Epeus triangulopalpis</i> Malamel, Nafin, Sudhikumar & Sebastian, 2019	Bengaluru Urban	iNaturalist, 2022
<i>Epocilla aurantiaca</i> (Simon, 1885)	Dakshina Kannada, Mysuru	Bhat <i>et al.</i> , 2013; Mubeen & Basavarajappa, 2018
<i>Epocilla calcarata</i> (Karsch, 1880)	Mysuru	Abhijith, 2021
<i>Evarcha flavocincta</i> (C.L. Koch, 1846)	Dakshina Kannada	iNaturalist, 2022
<i>Harmochirus brachiatus</i> (Thorell, 1877)	Kalaburagi, Mysuru, Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a; Talwar <i>et</i>



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<i>Harmochirus zabkai</i> Logunov, 2001	Shivamogga	<i>al.</i> , 2020; Abhijith, 2021 Logunov, 2001
<i>Hasarius adansoni</i> (Audouin, 1825)	Belagavi, Bengaluru Rural, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kolar, Koppal, Mysuru, Tumakuru, Uttara Kannada	Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Pawar & Ganesh, 2016; Joshi & Venkateshwarlu, 2017; Almale, 2017; Murali <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017b; Rao <i>et al.</i> , 2018; Mubeen & Basavarajappa, 2018; Fernandes & Ganesh, 2020; Shraddha & Chaturved, 2020; Abhijith, 2021; Padma & Sundarraaj, 2021
<i>Hindumanes</i> <i>karnatakaensis</i> (Tikader & Biswas, 1978)	Bengaluru Urban , Chikkamagaluru, Hassan, Shivamogga	Tikader & Biswas, 1978; Logunov, 2004; iNaturalist, 2022
<i>Hyllus pudicus</i> Thorell, 1895	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Hyllus semicupreus</i> (Simon, 1885)	Ballary, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kodagu, Kolar, Koppal, Mysuru, Ramanagara, Shivamogga, Tumakuru	Sherriffs, 1931; Sundararaj, 2008; Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Joshi & Venkateshwarlu, 2017; Prashanthakumara & Venkateshwarlu, 2017a; Mubeen & Basavarajappa, 2018; Tabasum <i>et</i> <i>al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019, 2020; Abhijith, 2021; Padma & Sundarraaj, 2021; Sharma & Ramakrishna, 2021; iNaturalist, 2022
<i>Icius kumariae</i> Caleb, 2017	Bengaluru Urban, Mysuru	Caleb, 2017; Abhijith, 2021
<i>Icius vikrambatrai</i> Prajapati, Malamel, Sudhikumar & Sebastian, 2018	Mysuru	Abhijith, 2021
<i>Indopadilla insularis</i> (Malamel, Sankaran & Sebastian, 2015)	Dakshina Kannada, Kodagu , Uttara Kannada	iNaturalist, 2022
<i>Indopadilla kodagura</i> Maddison, 2020	Kodagu	Maddison <i>et al.</i> , 2020
<i>Maripanthus gloria</i> Caleb, 2021	Bengaluru Urban, Udupi, Uttara Kannada	Caleb <i>et al.</i> , 2021; Asima <i>et al.</i> , 2021; iNaturalist, 2022
<i>Maripanthus jubatus</i> Maddison, 2020	Hassan, Kodagu, Uttara Kannada	Maddison <i>et al.</i> , 2020; Asima <i>et al.</i> , 2021; iNaturalist, 2022
<i>Menemerus bivittatus</i> (Dufour, 1831)	Ballary, Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Nalini Bai & Ravindranatha, 2012; Pawar & Ganesh, 2016; Joshi & Venkateshwarlu, 2017; Prashanthakumara & Venkateshwarlu, 2017a; Almale, 2017; Rao <i>et al.</i> , 2018; Tabasum <i>et</i> <i>al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Fernandes & Ganesh, 2020; Shraddha & Chaturved, 2020;

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<i>Myrmaplata plataloides</i> (O. Pickard-Cambridge, 1869)	Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Talwar <i>et al.</i> , 2020; Abhijith, 2021; Padma & Sundarraj, 2021; Sharma & Ramakrishna, 2021; iNaturalist, 2022
<i>Myrmarachne formicaria</i> (De Geer, 1778)	Mysuru	Sherriffs, 1931; Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Caleb, 2016b; Nalini Bai & Ravindranatha, 2017; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019, 2020; Fernandes & Ganesh, 2020; Abhijith & Hill, 2021; Padma & Sundarraj, 2021
<i>Myrmarachne melanocephala</i> MacLeay, 1839	Bengaluru Urban, Dakshina Kannada, Dharwad, Mysuru, Uttara Kannada	Abhijith, 2021; iNaturalist, 2022
<i>Myrmarachne ramunni</i> Narayan, 1915	Dakshina Kannada	Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Fernandes & Ganesh, 2020; Abhijith, 2021; iNaturalist, 2022
<i>Nepalicius nepalicus</i> (Andreeva, Hęciak & Prószyński, 1984)	Shivamogga	Bhat <i>et al.</i> , 2013
<i>Orientattus aurantius</i> (Kanesharatnam & Benjamin, 2018)	Mysuru, Uttara Kannada	Prashanthakumara & Venkateshwarlu, 2017a
<i>Phaeacius lancearius</i> (Thorell, 1855)	Mysuru, Uttara Kannada	Caleb, 2020; Abhijith, 2021; iNaturalist, 2022
<i>Phidippus bengalensis</i> Tikader, 1977	Mysuru	Mubeen & Basavarajappa, 2018; Abhijith & Hill, 2019b
<i>Phidippus yashodharae</i> Tikader, 1977	Belagavi	Tikader & Biswas, 1981
<i>Phintella cholkei</i> Prajapati, Kumbhar, Caleb, Sanap & Kamboj, 2021	Uttara Kannada	Pawar & Ganesh, 2016
<i>Phintella debilis</i> (Thorell, 1891)	Mysuru	iNaturalist, 2022
<i>Phintella vittata</i> (C.L. Koch, 1846)	Bengaluru Urban, Dakshina Kannada, Dharwad, Mysuru, Ramanagara, Shivamogga, Tumakuru	Abhijith, 2021; iNaturalist, 2022
<i>Phlegra dhakuriensis</i> (Tikader, 1974)	Yadagiri	Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Joshi & Venkateshwarlu, 2017; Prashanthakumara & Venkateshwarlu, 2017a; Vaibhav <i>et al.</i> , 2017; Rao <i>et al.</i> , 2018; Shraddha & Chaturved, 2019, 2020; Abhijith, 2021; iNaturalist, 2022
<i>Piranthus planolancis</i> Malamel, Nafin, Sudhikumar & Sebastian,	Mysuru	Nautiyal <i>et al.</i> , 2017
		Nafin <i>et al.</i> , 2020

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2019		
<i>Plexippus bhutani</i> Zabka, 1990	Bengaluru Urban	Caleb, 2016a
<i>Plexippus paykulli</i> (Audouin, 1825)	Ballary, Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kalaburagi, Kolar, Koppal, Mysuru, Raichur, Shivamogga, Tumakuru, Yadagiri	Vijaykumar & Patil, 2004; Patil <i>et al.</i> , 2006; Bhat <i>et al.</i> , 2013; Deshpande & Paul, 2016; Almale, 2017; Pawar & Ganesh, 2016; Joshi & Venkateshwarlu, 2017; Nautiyal <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017b; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Rao <i>et al.</i> , 2018; Tabasum <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019, 2020; Fernandes & Ganesh, 2020; Talwar <i>et al.</i> , 2020; Padma & Sundarraj, 2021
<i>Plexippus petersi</i> (Karsch, 1878)	Ballary, Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Ahmed <i>et al.</i> , 2015c; Prashanthakumara <i>et al.</i> , 2015; Almale, 2017; Deshpande & Paul, 2016; Pawar & Ganesh, 2016; Joshi & Venkateshwarlu, 2017; Vaibhav <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017b; Tabasum <i>et al.</i> , 2018; Mubeen & Basavarajappa, 2018; Rao <i>et al.</i> , 2018; Jalajakshi & Usha, 2019; Shraddha & Chaturved, 2020; Padma & Sundarraj, 2021; Sharma & Ramakrishna, 2021
<i>Portia albigimana</i> (Simon, 1900)	Bengaluru Urban, Shivamogga	Shraddha & Chaturved, 2019; Maliye <i>et al.</i> , 2020
<i>Portia fimbriata</i> (Doleschall, 1859)	Bengaluru Urban, Hassan, Kodagu, Mysuru	Sherriffs, 1931; Jalajakshi & Usha, 2019; Abhijith, 2021; iNaturalist, 2022
<i>Portia labiata</i> (Thorell, 1887)	Shivamogga	iNaturalist, 2022
<i>Proszynskia diatrete</i> (Simon, 1902)	Bengaluru Urban, Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a; iNaturalist, 2022
<i>Rhene flavicomans</i> Simon, 1902	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Mysuru, Ramanagara, Tumakuru	Shraddha & Chaturved, 2020; Abhijith, 2021; Padma & Sundarraj, 2021; iNaturalist, 2022
<i>Rhene flavigera</i> (C.L. Koch, 1846)	Belagavi, Bengaluru Rural, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dharwad, Kolar, Koppal, Mysuru, Tumakuru	Ramakrishnaiah <i>et al.</i> , 2014; Pawar & Ganesh, 2016; Vaibhav <i>et al.</i> , 2017; Fernandes & Ganesh, 2020; Abhijith, 2021; Padma & Sundarraj, 2021; Caleb <i>et al.</i> , 2022
<i>Rhene rubrigera</i> (Thorell, 1887)	Ballary, Dakshina Kannada, Mysuru	Bhat <i>et al.</i> , 2013; Mubeen & Basavarajappa, 2018; Abhijith, 2021; Caleb <i>et al.</i> , 2022



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<i>Siler semiglaucus</i> (Simon, 1901)	Dakshina Kannada, Mysuru, Uttara Kannada	Bhat <i>et al.</i> , 2013; Abhijith, 2021; iNaturalist, 2022
<i>Stenaelurillus albus</i> Sebastian, Sankaran, Malamel & Joseph, 2015	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Stenaelurillus arambagensis</i> (Biswas & Biswas, 1992)	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Stenaelurillus jagannathae</i> Das, Malik & Vidhel, 2015	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Stenaelurillus lesserti</i> Reimoser, 1934	Bengaluru Urban, Mysuru	Caleb & Sanap, 2016; Abhijith, 2021
<i>Telamonia dimidiata</i> (Simon, 1899)	Ballary, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Hassan, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Nalini Bai & Ravindranatha, 2012; Sundararaj, 2008; Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Deshpande & Paul, 2016; Joshi & Venkateshwarlu, 2017; Almale, 2017; Prashanthakumara & Venkateshwarlu, 2017a, b; Mubeen & Basavarajappa, 2018; Tabasum <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019, 2020; Padma & Sundarraj, 2021; iNaturalist, 2022
<i>Thiania bhamoensis</i> Thorell, 1887	Dakshina Kannada	Bhat <i>et al.</i> , 2013; Joshi & Venkateshwarlu, 2017; Almale, 2017
<i>Thyene imperialis</i> (Rossi, 1846)	Ballary, Bengaluru Urban, Kalaburagi, Mysuru	Talwar <i>et al.</i> , 2020; Abhijith, 2021; iNaturalist, 2022
<b>26. Scytodidae</b>		
<i>Scytodes fusca</i> Walckenaer, 1837	Bengaluru Urban, Shivamogga	Ramakrishnaiah <i>et al.</i> , 2014; Prashanthakumara & Venkateshwarlu, 2017a
<i>Scytodes pallida</i> Doleschall, 1859	Mysuru	Abhijith, 2021
<i>Scytodes thoracica</i> (Latreille, 1802)	Chikkamagaluru	Sundararaj, 2008
<i>Scytodes univittata</i> Simon, 1882	Kalaburagi	Talwar <i>et al.</i> , 2020
<b>27. Segestriidae</b>		
<i>Ariadna chhotae</i> Siliwal & Yadav, 2017	Uttara Kannada	Siliwal <i>et al.</i> , 2017
<i>Ariadna molur</i> Siliwal & Yadav, 2017	Uttara Kannada	Siliwal <i>et al.</i> , 2017
<b>28. Selenopidae</b>		
<i>Makdiops agumbensis</i> (Tikader, 1969)	Shivamogga	Tikader, 1969; Crews & Harvey, 2011
<i>Makdiops mahishasura</i> Crews & Harvey, 2011	Chamarajanagara, Mysuru	Crews & Harvey, 2011
<i>Selenops radiatus</i> Latreille,	Bengaluru Urban	Pocock, 1900

Family/Species	Districts	References
1819		
<b>29. Sicariidae</b>		
<i>Loxosceles rufescens</i> (Dufour, 1820)	Dharwad, Mysuru	Vaibhav <i>et al.</i> , 2017; iNaturalist, 2022
<b>30. Sparassidae</b>		
<i>Heteropoda altithorax</i> Strand, 1907	Kodagu	Strand, 1907b, 1909
<i>Heteropoda emarginativulva</i> Strand, 1907	Kodagu	Strand, 1907b, 1909
<i>Heteropoda merkarensis</i> Strand, 1907	Kodagu	Strand, 1907b, 1909
<i>Heteropoda nilgirina</i> , Pocock, 1901	Bengaluru Urban, Dharwad	Ramakrishnaiah <i>et al.</i> , 2014; Vaibhav <i>et al.</i> , 2017
<i>Heteropoda sexpunctata</i> Simon, 1885	Mysuru	Gravely, 1931
<i>Heteropoda venatoria</i> (Linnaeus, 1767)	Ballary, Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kolar, Koppal, Shivamogga, Tumakuru	Strand, 1909; Prashanthakumara <i>et al.</i> , 2015; Pawar & Ganesh, 2016; Prashanthakumara & Venkateshwarlu, 2017a; Rao <i>et al.</i> , 2018; Tabasum <i>et al.</i> , 2018; Shraddha & Chaturved, 2019; Somashekar <i>et al.</i> , 2020; Padma & Sundarraaj, 2021
<i>Olios lamarcki</i> (Latreille, 1806)	Mysuru	Abhijith, 2021
<i>Olios milleti</i> (Pocock, 1901)	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dharwad, Kolar, Koppal, Tumakuru	Ramakrishnaiah <i>et al.</i> , 2014; Vaibhav <i>et al.</i> , 2017; Padma & Sundarraaj, 2021
<i>Olios tener</i> (Thorell, 1891)	Bengaluru Urban, Kalaburagi	Gravely, 1931; Sethi & Tikader, 1988; Talwar <i>et al.</i> , 2020
<i>Thelcticopis kirankhalapi</i> Ahmed, Sumukha, Khalap, Mohan & Jadhav, 2015	Dakshina Kannada, Shivamogga, Uttara Kannada	Ahmed <i>et al.</i> , 2015d; iNaturalist, 2022
<i>Thelcticopis serambiformis</i> Strand, 1907	Kodagu	Strand, 1907b, 1909
<b>31. Stenochilidae</b>		
<i>Stenochilus hobsoni</i> O. Pickard-Cambridge, 1871	Mysuru	Platnick. & Shadab, 1974
<b>32. Tetragnathidae</b>		
<i>Guizygiella indica</i> (Tikader & Bal, 1980)	Belagavi, Bengaluru Urban, Mandya	Venkateshalu <i>et al.</i> , 2009; Pawar & Ganesh, 2016
<i>Guizygiella melanocrania</i> (Thorell, 1887)	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Guizygiella shivui</i> (Patel & Reddy, 1990)	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Leucauge celebesiana</i> (Walckenaer, 1841)	Shivamogga, Yadagiri	Nautiyal <i>et al.</i> , 2017; Prashanthakumara &

Family/Species	Districts	References
<i>Leucauge decorata</i> (Blackwall, 1864)	Belagavi, Bengaluru Rural, Bengaluru Urban, Chikkaballapura, Dakshina Kannada, Kalaburagi, Kodagu, Koppal, Mysuru, Raichur, Shivamogga, Tumakuru, Uttara Kannada	Venkateshwarlu, 2017a Gravely, 1921; Sherriffs, 1928; Tikader, 1982; Vijaykumar & Patil, 2004, 2006; Prasad <i>et al.</i> , 2010; Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Deshpande & Paul, 2016; Pawar & Ganesh, 2016; Joshi & Venkateshwarlu, 2017; Almale, 2017; Murali <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a; Rao <i>et al.</i> , 2018; Jalajakshi & Usha, 2019; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019, 2020; Fernandes & Ganesh, 2020; Talwar <i>et al.</i> , 2020
<i>Leucauge fastigata</i> (Simon, 1877)	Belagavi, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Hassan, Kodagu, Kolar, Koppal, Mysuru, Ramanagara, Shivamogga, Tumakuru	Sherriffs, 1928; Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Pawar & Ganesh, 2016; Shraddha & Chaturved, 2019, 2020; Fernandes & Ganesh, 2020; Abhijith, 2021; Padma & Sundarraaj, 2021; iNaturalist, 2022
<i>Leucauge tessellata</i> (Thorell, 1887)	Bengaluru Urban, Kodagu, Mysuru, Shivamogga	Tikader, 1982; Ramakrishnaiah <i>et al.</i> , 2014; Shraddha & Chaturved, 2019; Abhijith, 2021; iNaturalist, 2022
<i>Mesida culta</i> (O. Pickard- Cambridge, 1869)	Mysuru	Tikader, 1982; Abhijith, 2021
<i>Tetragnatha andamanensis</i> Tikader, 1977	Bengaluru Urban, Koppal, Mandya, Raichur	Vijaykumar & Patil, 2004, 2006; Venkateshalu <i>et al.</i> , 2009
<i>Tetragnatha ceylonica</i> O. Pickard-Cambridge, 1869	Chamarajanagara	Gravely, 1921
<i>Tetragnatha cochinensis</i> Gravely, 1921	Bengaluru Urban, Dakshina Kannada	Gravely, 1921; Joshi & Venkateshwarlu, 2017; Almale, 2017
<i>Tetragnatha elongata</i> Walckenaer, 1841	Mysuru	Mubeen & Basavarajappa, 2018
<i>Tetragnatha fletcheri</i> Gravely, 1921	Dakshina Kannada, Yadagiri	Bhat <i>et al.</i> , 2013; Nautiyal <i>et al.</i> , 2017
<i>Tetragnatha javana</i> (Thorell, 1890)	Bengaluru Urban, Dakshina Kannada, Mandya, Mysuru, Yadagiri	Gravely, 1921; Tikader & Biswas, 1981; Almale, 2017; Joshi & Venkateshwarlu, 2017; Nautiyal <i>et al.</i> , 2017
<i>Tetragnatha keyserlingi</i> Simon, 1890	Mandya, Yadagiri	Nautiyal <i>et al.</i> , 2017; Parasappa <i>et al.</i> , 2017
<i>Tetragnatha mandibulata</i> Walckenaer, 1841	Bengaluru Urban, Dakshina Kannada, Mandya, Mysuru, Shivamogga, Yadagiri	Gravely, 1921; Tikader & Biswas, 1981; Almale, 2017; Joshi & Venkateshwarlu, 2017; Nautiyal <i>et al.</i> , 2017; Parasappa <i>et al.</i> , 2017; Shraddha & Chaturved, 2019
<i>Tetragnatha moulmeinensis</i> Gravely,	Yadagiri	Nautiyal <i>et al.</i> , 2017



Family/Species	Districts	References
1921		
<i>Tetragnatha okumae</i> Barrion & Litsinger, 1995	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Tetragnatha sutherlandi</i> Gravely, 1921	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Tetragnatha vermiformis</i> Emerton, 1884	Bengaluru Urban, Mandya	Gravely, 1921
<i>Tetragnatha viridorufa</i> Gravely, 1921	Dakshina Kannada, Mysuru	Bhat <i>et al.</i> , 2013; Almale, 2017; Joshi & Venkateshwarlu, 2017; Mubeen & Basavarajappa, 2018
<i>Tylorida striata</i> (Thorell, 1877)	Mysuru	Mubeen & Basavarajappa, 2018; Abhijith, 2021
<i>Tylorida ventralis</i> (Thorell, 1877)	Dakshina Kannada, Dharwad, Mysuru	Bhat <i>et al.</i> , 2013; Almale, 2017; Joshi & Venkateshwarlu, 2017; Vaibhav <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Rao <i>et al.</i> , 2018
<b>33. Theraphosidae</b>		
<i>Annandaliella</i> <i>travancorica</i> Hirst, 1909	Chikkamagaluru	Somashekar <i>et al.</i> , 2020
<i>Chilobrachys fimbriatus</i> Pocock, 1899	Shivamogga	Gravely, 1915; Siliwal <i>et al.</i> , 2011b
<i>Neoheterophrictus</i> <i>crurofulvus</i> Siliwal, Gupta & Raven, 2012	Uttara Kannada	Siliwal <i>et al.</i> , 2012
<i>Neoheterophrictus</i> <i>sahyadri</i> Siliwal, Gupta & Raven, 2012	Uttara Kannada	Siliwal <i>et al.</i> , 2012
<i>Neoheterophrictus smithi</i> Mirza, Bhosale & Sanap, 2014	Shivamogga	Mirza <i>et al.</i> , 2014
<i>Neoheterophrictus</i> <i>uttarakannada</i> Siliwal, Gupta & Raven, 2012	Uttara Kannada	Siliwal <i>et al.</i> , 2012
<i>Poecilotheria regalis</i> Pocock, 1899	Bengaluru Urban, Chamarajanagara, Kodagu, Mysuru	Gravely, 1915; Tikader, 1977; Molur <i>et al.</i> , 2004; Siliwal <i>et al.</i> , 2011b; Jalajakshi & Usha, 2019
<i>Poecilotheria rufilata</i> Pocock, 1899	Chamarajanagara	Smith & Kirk, 2002
<i>Poecilotheria striata</i> Pocock, 1895	Mysuru, Uttara Kannada	Pocock, 1900; Siliwal <i>et al.</i> , 2011b, 2013
<i>Thrigmopoeus insignis</i> Pocock, 1899	Udupi, Dakshina Kannada, Uttara Kannada	Pocock, 1899, 1900; Siliwal <i>et al.</i> , 2011b
<i>Thrigmopoeus truculentus</i> Pocock, 1899	Kodagu, Shivamogga, Uttara Kannada	Pocock, 1899, 1900; Siliwal & Molur, 2009; iNaturalist, 2022
<b>34. Theridiidae</b>		
<i>Argyrodes ambalikae</i> Tikader, 1970	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Argyrodes argentatus</i> O. Pickard-Cambridge, 1880	Dakshina Kannada	Bhat <i>et al.</i> , 2013

Family/Species	Districts	References
<i>Argyroides bonadea</i> (Karsch, 1881)	Mysuru	Abhijith, 2021
<i>Argyroides cyrtophorae</i> Tikader, 1963	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Argyroides flavescens</i> O. Pickard-Cambridge, 1880	Bengaluru Urban	Nalini Bai & Ravindranatha, 2012
<i>Argyroides gazedes</i> Tikader, 1970	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Ariamnes colubrinus</i> Keyserling, 1890	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Ariamnes flagellum</i> (Doleschall, 1857)	Bengaluru Urban, Dakshina Kannada	Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013
<i>Chikunia nigra</i> (O. Pickard-Cambridge, 1880)	Dakshina Kannada, Shivamogga	Bhat <i>et al.</i> , 2013; Prashanthakumara & Venkateshwarlu, 2017a; Abhijith, 2021
<i>Chrysso urbasa</i> (Tikader, 1970)	Mysuru	Abhijith, 2021
<i>Meotipa argyrodiformis</i> (Yaginuma, 1952)	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Meotipa multuma</i> Murthappa, Malamel, Prajapati, Sebastian & Venkateshwarlu, 2017	Chikkamagaluru	Murthappa <i>et al.</i> , 2017
<i>Meotipa picturata</i> Simon, 1895	Kodagu	Sherriffs, 1927
<i>Meotipa sahyadri</i> Kulkarni, Vartak, Deshpande & Halali, 2017	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Tumakuru	Padma & Sundarraj, 2021
<i>Molione triacantha</i> Thorell, 1892	Uttara Kannada, Dakshina Kannada	iNaturalist, 2022
<i>Nesticodes rufipes</i> (Lucas, 1846)	Bengaluru Urban, Kodagu	Strand, 1907a; Jalajakshi & Usha, 2019
<i>Nihonhimea indica</i> (Tikader, 1977)	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Nihonhimea mundula</i> (L. Koch, 1872)	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kodagu, Kolar, Koppal, Tumakuru	Sherriffs, 1927; Bhat <i>et al.</i> , 2013; Padma & Sundarraj, 2021
<i>Parasteatoda corrugata</i> Yoshida, 2016	Mysuru	Mubeen & Basavarajappa, 2018
<i>Parasteatoda tepidariorum</i> (C.L. Koch, 1841)	Dakshina Kannada, Dharwad, Kodagu	Sherriffs, 1927; Bhat <i>et al.</i> , 2013; Vaibhav <i>et al.</i> , 2017
<i>Phylloneta impressa</i> (L. Koch, 1881)	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Propostira quadrangulata</i> Simon, 1894	Dakshina Kannada	iNaturalist, 2022
<i>Theridion manjithar</i> Tikader, 1970	Bengaluru Urban, Shivamogga, Yadagiri	Nautiyal <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a; Somashekar <i>et al.</i> , 2020; Sharma & Ramakrishna, 2021

Family/Species	Districts	References
<i>Theridion melanostictum</i> O. Pickard-Cambridge, 1876	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Theridion varians</i> Hahn, 1833	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Theridion zonulatum</i> Thorell 1890	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Theridula gonygaster</i> (Simon, 1873)	Mysuru	Abhijith, 2021
<b>35. Thomisidae</b>		
<i>Amyciaea forticeps</i> (O. Pickard-Cambridge, 1873)	Bengaluru Urban, Dakshina Kannada, Mysuru, Uttara Kannada	Nalini Bai & Ravindranatha, 2012, 2017; Bhat <i>et al.</i> , 2013; Mubeen & Basavarajappa, 2018; iNaturalist, 2022
<i>Angaeus pentagonalis</i> Pocock, 1901	Chikkamagaluru	Tikader, 1963a, 1971a, 1977
<i>Camaricus formosus</i> Thorell, 1887	Dakshina Kannada	Tikader & Biswas, 1981; Bhat <i>et al.</i> , 2013
<i>Indoxysticus minutus</i> (Tikader, 1960)	Dakshina Kannada, Dharwad	Bhat <i>et al.</i> , 2013; Vaibhav <i>et al.</i> , 2017
<i>Loxobates castetsi</i> (Simon, 1906)	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Mastira menoka</i> (Tikader, 1963)	Chikkamagaluru	Tikader, 1963a
<i>Misumena annapurna</i> Tikader, 1963	Chikkamagaluru	Tikader, 1963a, 1971a
<i>Misumena indra</i> Tikader, 1963	Chikkamagaluru	Tikader, 1963a, 1971a
<i>Misumena vatia</i> (Clerck, 1757)	Mysuru	Mubeen & Basavarajappa, 2018
<i>Misumenops rubrodecoratus</i> Millot, 1942	Shivamogga	Shraddha & Chaturved, 2019
<i>Oxytate virens</i> (Thorell, 1891)	Bengaluru Urban, Dakshina Kannada, Uttara Kannada	Bhat <i>et al.</i> , 2013; Almale, 2017; Joshi & Venkateshwarlu, 2017; Jalajakshi & Usha, 2019; iNaturalist, 2022
<i>Pasias puspagiri</i> Tikader, 1963	Hassan	Tikader, 1963a, 1971a
<i>Pharta indica</i> Sen, Saha & Raychaudhuri, 2012	Mysuru	Abhijith, 2021
<i>Platythomisus sudeepi</i> Biswas, 1977	Kodagu	Biswas, 1977; Tikader, 1980
<i>Runcinia acuminata</i> (Thorell, 1881)	Bengaluru Urban	Nalini Bai & Ravindranatha, 2012
<i>Runcinia ghorpadei</i> Tikader, 1980	Bengaluru Urban	Tikader, 1980
<i>Runcinia insecta</i> (L. Koch, 1875)	Bengaluru Urban, Shivamogga, Tumakuru	Sundararaj, 2008; Kokilamani <i>et al.</i> , 2019; Sharma & Ramakrishna, 2021
<i>Runcinia roonwali</i>	Kalaburagi	Deshpande & Paul, 2016



Family/Species	Districts	References
Tikader, 1965		
<i>Strigoplus netravati</i> Tikader, 1963	Bengaluru Urban, Chikkamagaluru, Dakshina Kannada, Uttara Kannada	Tikader, 1963a, 1971a, 1980a; Sundararaj, 2008; Bhat <i>et al.</i> , 2013; iNaturalist, 2022
<i>Synema decoratum</i> Tikader, 1960	Karnataka	Tikader, 1971
<i>Synema mysorens</i> Tikader, 1980	Bengaluru Urban	Tikader, 1980
<i>Thomisus andamanensis</i> Tikader 1980	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Tumakuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Padma & Sundarraaj, 2021
<i>Thomisus bulani</i> Tikader, 1960	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Tumakuru	Padma & Sundarraaj, 2021
<i>Thomisus lobosus</i> Tikader, 1965	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kolar, Koppal, Tumakuru	Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Vaibhav <i>et al.</i> , 2017; Padma & Sundarraaj, 2021
<i>Thomisus projectus</i> Tikader, 1960	Bengaluru Rural, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Tumakuru	Murali <i>et al.</i> , 2017; Padma & Sundarraaj, 2021
<i>Thomisus pugilis</i> Stoliczka, 1869	Belagavi, Bengaluru Urban, Dakshina Kannada, Tumakuru, Yadagiri	Nalini Bai & Ravindranatha, 2012; Bhat <i>et al.</i> , 2013; Ramakrishnaiah <i>et al.</i> , 2014; Pawar & Ganesh, 2016; Nautiyal <i>et al.</i> , 2017; Kokilamani <i>et al.</i> , 2019
<i>Thomisus spectabilis</i> Doleschall, 1859	Shivamogga, Tumakuru	Shraddha & Chaturved, 2019, 2020
<i>Thomisus stoliczkai</i> (Thorell, 1887)	Kodagu	Sherriffs, 1929
<i>Thomisus whitakeri</i> Gajbe, 2004	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Tmarus kotigeharus</i> Tikader, 1963	Chikkamagaluru	Tikader, 1963a, 1971a
<i>Xysticus kashidi</i> Tikader, 1963	Chikkamagaluru	Tikader, 1963a, 1971a
<i>Xysticus tikaderi</i> Bhandari & Gajbe, 2001	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<b>36. Titanoecidae</b>		
<i>Pandava ganga</i> Almeida- Silva, Griswold & Brescovit, 2010	Belagavi, Mysuru	Almeida-Silva <i>et al.</i> , 2010
<i>Pandava laminata</i> (Thorell, 1878)	Kalaburagi	Talwar <i>et al.</i> , 2020
<b>37. Trochanteriidae</b>		
<i>Plator indicus</i> Simon, 1897	Ballary	Tabasum <i>et al.</i> , 2018
<b>38. Uloboridae</b>		
<i>Miagrammopes extensus</i> Simon, 1889	Dakshina Kannada	Bhat <i>et al.</i> , 2013

Family/Species	Districts	References
<i>Philoponella feroxa</i> (Bradoo, 1979)	Mysuru	iNaturalist, 2022
<i>Uloborus danolius</i> Tikader, 1969	Mysuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018
<i>Uloborus krishnae</i> Tikader, 1970	Mysuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018
<i>Zosis geniculata</i> (Olivier, 1789)	Bengaluru Urban, Dakshina Kannada, Kodagu, Tumakuru	Sherriffs, 1927; Nalini Bai & Ravindranatha, 2012; Jalajakshi & Usha, 2019; Shraddha & Chaturved, 2020
<b>39. Zodariidae</b>		
<i>Euryeidon katapagai</i> Talwar, Majagi, Bodkhe & Kamble, 2018	Kalaburagi	Talwar <i>et al.</i> , 2018, 2020
<i>Tropizodium kalami</i> Prajapati, Murthappa, Sankaran & Sebastian, 2016	Kalaburagi, Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a; Talwar <i>et al.</i> , 2020

Table 2. Species of spiders identified upto generic level and recorded in different districts of Karnataka.

Family/Species	Districts	References
<b>1. Agelenidae</b>		
<i>Tegenaria</i> sp.	Chikkamagaluru	Prashanthakumara & Venkateshwarlu, 2017b
<b>2. Araneidae</b>		
<i>Arachnura</i> sp.	Chikkamagaluru, Dakshina Kannada, Mysuru	Bhat <i>et al.</i> , 2013; Prashanthakumara & Venkateshwarlu, 2017b; Abhijith, 2021
<i>Araneus</i> sp.	Bengaluru Rural, Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kalaburagi, Kolar, Koppal, Shivamogga, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Rao <i>et al.</i> , 2018; Prashanthakumara & Venkateshwarlu, 2017a; Murali <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019; Talwar <i>et al.</i> , 2020; Abhijith, 2021; Padma & Sundarraj, 2021
<i>Argiope</i> sp.	Ballary, Bengaluru Urban, Chikkamagaluru, Dakshina Kannada, Mandya, Mysuru, Shivamogga, Tumakuru, Yadagiri	Venkateshalu <i>et al.</i> , 2009; Bhat <i>et al.</i> , 2013; Prashanthakumara <i>et al.</i> , 2015; Joshi & Venkateshwarlu, 2017; Nautiyal <i>et al.</i> , 2017; Rao <i>et al.</i> , 2018; Tabasum <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019; Nijagal <i>et al.</i> , 2020; Somashekar <i>et al.</i> , 2020; Sharma & Ramakrishna, 2021
<i>Chorizopes</i> sp.	Mysuru, Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a; Abhijith, 2021
<i>Cyclosa</i> sp.	Chikkamagaluru, Mysuru, Shivamogga, Tumakuru	Prashanthakumara & Venkateshwarlu, 2017a; Kokilamani <i>et al.</i> , 2019; Nijagal <i>et al.</i> , 2020; Shraddha & Chaturved, 2020; Somashekar <i>et al.</i> , 2020; Abhijith, 2021
<i>Cyrtarachne</i> sp.	Dakshina Kannada	Bhat <i>et al.</i> , 2013

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<i>Cyrtophora</i> sp.	Ballary, Chikkamagaluru, Dakshina Kannada, Koppal, Mysuru, Raichur, Tumakuru	Vijaykumar & Patil, 2004; Bhat <i>et al.</i> , 2013; Tabasum <i>et al.</i> , 2018; Shraddha & Chaturved, 2020; Somashekar <i>et al.</i> , 2020; Abhijith, 2021
<i>Eriovixia</i> sp.	Bengaluru Urban, Mysuru, Shivamogga, Tumakuru	Murali <i>et al.</i> , 2017, Shraddha & Chaturved, 2019; Shraddha & Chaturved, 2020; Abhijith, 2021
<i>Gasteracantha</i> sp.	Bengaluru Urban, Shivamogga	Nalini Bai & Ravindranatha, 2012; Shraddha & Chaturved, 2019
<i>Gea</i> sp.	Mysuru	Abhijith, 2021
<i>Herennia</i> sp.	Dakshina Kannada, Mysuru	Bhat <i>et al.</i> , 2013; Abhijith, 2021
<i>Hypsosinga</i> sp.	Chikkamagaluru	Somashekar <i>et al.</i> , 2020
<i>Larinia</i> sp.	Kalaburagi, Mysuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Talwar <i>et al.</i> , 2020; Abhijith, 2021
<i>Neoscona</i> sp.	Bengaluru Urban, Dakshina Kannada, Kalaburagi, Mysuru, Tumakuru	Bhat <i>et al.</i> , 2013; Deshpande & Paul, 2016; Murali <i>et al.</i> , 2017; Nautiyal <i>et al.</i> , 2017; Rao <i>et al.</i> , 2018; Shraddha & Chaturved, 2020; Abhijith, 2021
<i>Nephila</i> sp.	Bengaluru Urban, Dakshina Kannada, Tumakuru	Bhat <i>et al.</i> , 2013; Rao <i>et al.</i> , 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2020; Sharma & Ramakrishna, 2021
<i>Parawixia</i> sp.	Mysuru	Abhijith, 2021
<i>Pasilobus</i> sp.	Mysuru	Abhijith, 2021
<i>Polys</i> sp.	Mysuru	Talwar <i>et al.</i> , 2020; Abhijith, 2021
<i>Thelacantha</i> sp.	Tumakuru	Shraddha & Chaturved, 2020
<i>Zygiella</i> sp.	Yadagiri	Nautiyal <i>et al.</i> , 2017
<b>3. Cheiracanthiidae</b>		
<i>Cheiracanthium</i> sp.	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Mysuru, Tumakuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Shraddha & Chaturved, 2020; Abhijith, 2021; Padma & Sundarraj, 2021
<b>4. Clubionidae</b>		
<i>Clubiona</i> sp.	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Bhat <i>et al.</i> , 2013; Prashanthakumara & Venkateshwarlu, 2017b; Shraddha & Chaturved, 2019; Abhijith, 2021; Padma & Sundarraj, 2021
<i>Matidia</i> sp.	Dakshina Kannada, Mysuru	Bhat <i>et al.</i> , 2013; Nijagal <i>et al.</i> , 2020; Abhijith, 2021
<b>5. Corinnidae</b>		
<i>Cambalida</i> sp.	Kalaburagi, Mysuru	Mubeen & Basavarajappa, 2018; Talwar <i>et al.</i> , 2020; Abhijith, 2021
<i>Castianeira</i> sp.	Mysuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Abhijith, 2021
<i>Echinax</i> sp.	Mysuru	Abhijith, 2021
<b>6. Ctenidae</b>		
<i>Ctenus</i> sp.	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a



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<b>7. Deinopidae</b>		
<i>Asianopis</i> sp.	Mysuru	Abhijith, 2021
<b>8. Dictynidae</b>		
<i>Nigma</i> sp.	Mysuru	Abhijith, 2021
<b>9. Eresidae</b>		
<i>Stegodyphus</i> sp.	Bengaluru Urban	Murali <i>et al.</i> , 2017
<b>10. Filistatidae</b>		
<i>Pritha</i> sp.	Dharwad, Mysuru, Shivamogga, Yadagiri	Nautiyal <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a; Vaibhav <i>et al.</i> , 2017; Abhijith, 2021
<b>11. Gnaphosidae</b>		
<i>Berlandina</i> sp.	Mysuru	Abhijith, 2021
<i>Drassodes</i> sp.	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Gnaphosa</i> sp.	Kalaburagi, Shivamogga	Deshpande & Paul, 2016; Shraddha & Chaturved, 2019; Prashanthakumara & Venkateshwarlu, 2017b
<i>Poecilochroa</i> sp.	Dakshina Kannada, Kalaburagi, Mysuru	Bhat <i>et al.</i> , 2013; Talwar <i>et al.</i> , 2020; Abhijith, 2021
<i>Prodidomus</i> sp.	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Scopoides</i> sp.	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Scotophaeus</i> sp.	Dakshina Kannada, Mysuru	Bhat <i>et al.</i> , 2013; Abhijith, 2021
<i>Zelotes</i> sp.	Kalaburagi, Mysuru	Talwar <i>et al.</i> , 2020; Abhijith, 2021
<b>12. Hersiliidae</b>		
<i>Hersilia</i> sp.	Shivamogga, Tumakuru	Prashanthakumara <i>et al.</i> , 2015; Kokilamani <i>et al.</i> , 2019
<i>Murricia</i> sp.	Mysuru	Abhijith, 2021
<b>13. Idiopidae</b>		
<i>Idiops</i> sp.	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<b>14. Ischnothelidae</b>		
<i>Indothele</i> sp.	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<b>15. Linyphiidae</b>		
<i>Lepthyphantes</i> sp.	Chikkamagaluru	Somashekar <i>et al.</i> , 2020
<i>Nerienne</i> sp.	Mysuru	Abhijith, 2021
<b>16. Liocranidae</b>		
<i>Oedignatha</i> sp.	Mysuru	Abhijith, 2021
<b>17. Lycosidae</b>		
<i>Arctosa</i> sp.	Bengaluru Urban, Kalaburagi, Mysuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Talwar <i>et al.</i> , 2020; Abhijith, 2021; Sharma & Ramakrishna, 2021

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<i>Draposa</i> sp.	Mysuru	Abhijith, 2021
<i>Evippa</i> sp.	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Hippasa</i> sp.	Dakshina Kannada, Mysuru, Tumakuru	Bhat <i>et al.</i> , 2013; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2020; Abhijith, 2021
<i>Hogna</i> sp.	Ballary, Mysuru	Tabasum <i>et al.</i> , 2018; Abhijith, 2021
<i>Lycosa</i> sp.	Chikkamagaluru, Kalaburagi, Mysuru, Shivamogga, Tumakuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a, b; Mubeen & Basavarajappa, 2018; Kokilamani <i>et al.</i> , 2019; Talwar <i>et al.</i> , 2020
<i>Ovia</i> sp.	Mysuru	Abhijith, 2021
<i>Pardosa</i> sp.	Bengaluru Urban, Chikkamagaluru, Dakshina Kannada, Dharwad, Koppal, Mandya, Mysuru, Raichur, Shivamogga, Tumakuru, Yadagiri	Vijaykumar & Patil, 2004; Patil <i>et al.</i> , 2006; Venkateshalu <i>et al.</i> , 2009; Phulse & Udikeri, 2014; Nautiyal <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a, b; Mubeen & Basavarajappa, 2018; Shraddha & Chaturved, 2019, 2020; Nijagal <i>et al.</i> , 2020; Abhijith, 2021
<i>Trochosa</i> sp.	Mysuru	Mubeen & Basavarajappa, 2018; Abhijith, 2021
<b>18. Oxyopidae</b>		
<i>Hamadruas</i> sp.	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Mysuru, Tumakuru	Abhijith, 2021; Padma & Sundarraj, 2021
<i>Hamataliwa</i> sp.	Chikkamagaluru, Kalaburagi, Mysuru, Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a, b; Mubeen & Basavarajappa, 2018; Nijagal <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020; Abhijith, 2021
<i>Oxyopes</i> sp.	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Dharwad, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru, Yadagiri	Sundararaj, 2008; Bhat <i>et al.</i> , 2013; Phulse & Udikeri, 2014; Deshpande & Paul, 2016; Nautiyal <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Rao <i>et al.</i> , 2018; Jalajakshi & Usha, 2019; Shraddha & Chaturved, 2020; Somashekar <i>et al.</i> , 2020; Abhijith, 2021; Padma & Sundarraj, 2021
<i>Peucetia</i> sp.	Mysuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Talwar <i>et al.</i> , 2020; Abhijith, 2021
<b>19. Philodromidae</b>		
<i>Philodromus</i> sp.	Kalaburagi, Mysuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Talwar <i>et al.</i> , 2020; Abhijith, 2021
<i>Psellonus</i> sp.	Mysuru	Abhijith, 2021
<i>Thanatus</i> sp.	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kalaburagi, Kolar, Koppal, Tumakuru	Sundararaj, 2008; Talwar <i>et al.</i> , 2020; Padma & Sundarraj, 2021
<i>Tibellus</i> sp.	Bengaluru Urban, Kalaburagi, Mysuru, Tumakuru, Yadagiri	Sundararaj, 2008; Nautiyal <i>et al.</i> , 2017; Shraddha & Chaturved, 2020; Talwar <i>et al.</i> , 2020; Abhijith, 2021

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<b>20. Pholcidae</b>		
<i>Belisana</i> sp.	Dakshina Kannada, Kalaburagi, Mysuru	Bhat <i>et al.</i> , 2013; Abhijith, 2021
<i>Crossopriza</i> sp.	Mysuru	Abhijith, 2021
<i>Pholcus</i> sp.	Ballary, Bengaluru Urban, Chikkamagaluru, Dakshina Kannada, Kalaburagi, Shivamogga, Tumakuru	Bhat <i>et al.</i> , 2013; Deshpande & Paul, 2016; Prashanthakumara & Venkateshwarlu, 2017b; Tabasum <i>et al.</i> , 2018; Shraddha & Chaturved, 2019, 2020; Sharma & Ramakrishna, 2021
<i>Smeringopus</i> sp.	Mysuru	Abhijith, 2021
<b>21. Pisauridae</b>		
<i>Euprosthops</i> sp.	Mysuru	Abhijith, 2021
<i>Hygropoda</i> sp.	Mysuru	Abhijith, 2021
<i>Perenethis</i> sp.	Bengaluru Rural, Bengaluru Urban, Mysuru	Murali <i>et al.</i> , 2017; Abhijith, 2021
<i>Tinus</i> sp.	Yadagiri	Nautiyal <i>et al.</i> , 2017
<b>22. Salticidae</b>		
<i>Aelurillus</i> sp.	Chikkamagaluru	Somashekar <i>et al.</i> , 2020
<i>Afraflacilla</i> sp.	Mysuru	Abhijith, 2021
<i>Asemonea</i> sp.	Shivamogga	Shraddha & Chaturved, 2019
<i>Asianellus</i> sp.	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Bianor</i> sp.	Mysuru	Abhijith, 2021
<i>Brancus</i> sp.	Mysuru	Abhijith, 2021
<i>Brettus</i> sp.	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Bristowia</i> sp.	Mysuru	Abhijith, 2021
<i>Carrhotus</i> sp.	Dakshina Kannada	Bhat <i>et al.</i> , 2013; Rao <i>et al.</i> , 2018
<i>Chrysilla</i> sp.	Tumakuru	Shraddha & Chaturved, 2020
<i>Cocalus</i> sp.	Mysuru	Mubeen & Basavarajappa, 2018; Abhijith, 2021
<i>Curubis</i> sp.	Mysuru	Mubeen & Basavarajappa, 2018
<i>Epeus</i> sp.	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Evarcha</i> sp.	Bengaluru Rural, Chikkamagaluru	Murali <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017b
<i>Hasarius</i> sp.	Dakshina Kannada	Bhat <i>et al.</i> , 2013
<i>Hyllus</i> sp.	Chikkamagaluru	Prashanthakumara & Venkateshwarlu, 2017b
<i>Indomarengo</i> sp.	Mysuru	Mubeen & Basavarajappa, 2018
<i>Jerzego</i> sp.	Mysuru	Abhijith, 2021
<i>Langona</i> sp.	Mysuru	Abhijith, 2021
<i>Madhyattus</i> sp.	Mysuru	Abhijith, 2021
<i>Marpissa</i> sp.	Koppal, Raichur, Yadagiri	Vijaykumar & Patil, 2004; Nautiyal <i>et al.</i> , 2017
<i>Menemerus</i> sp.	Ballary, Dakshina Kannada, Shivamogga	Bhat <i>et al.</i> , 2013; Prashanthakumara & Venkateshwarlu, 2017a; Tabasum <i>et al.</i> , 2018
<i>Myrmarachne</i> sp.	Bengaluru Urban, Dakshina Kannada, Mandya, Mysuru	Sundararaj, 2008; Venkateshalu <i>et al.</i> , 2009; Bhat <i>et al.</i> , 2013; Abhijith, 2021



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<i>Neaetha</i> sp.	Mysuru	Abhijith, 2021
<i>Onomastus</i> sp.	Bengaluru Urban, Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a; Sharma & Ramakrishna, 2021
<i>Pellenes</i> sp.	Mysuru	Abhijith, 2021
<i>Phaeacius</i> sp.	Mysuru	Abhijith, 2021
<i>Phidippus</i> sp.	Koppal, Raichur, Yadagiri	Vijaykumar & Patil, 2004; Nautiyal <i>et al.</i> , 2017
<i>Phintella</i> sp.	Dakshina Kannada, Mysuru	Rao <i>et al.</i> , 2018; Abhijith, 2021
<i>Piranthus</i> sp.	Mysuru	Abhijith, 2021
<i>Plexippus</i> sp.	Chikkamagaluru, Dakshina Kannada, Yadagiri	Sundararaj, 2008; Bhat <i>et al.</i> , 2013; Nautiyal <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017b; Rao <i>et al.</i> , 2018; Somashekar <i>et al.</i> , 2020
<i>Proszynskia</i> sp.	Mysuru	Abhijith, 2021
<i>Ptocassius</i> sp.	Kalaburagi	Deshpande & Paul, 2016
<i>Rhene</i> sp.	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Tumakuru, Yadagiri	Sundararaj, 2008; Nalini Bai & Ravindranatha, 2012; Nautiyal <i>et al.</i> , 2017; Kokilamani <i>et al.</i> , 2019; Padma & Sundarraj, 2021
<i>Stenaelurillus</i> sp.	Mysuru, Tumakuru	Shraddha & Chaturved, 2020; Abhijith, 2021
<i>Thyenula</i> sp.	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Zygoballus</i> sp.	Bengaluru Urban, Koppal, Mandya, Raichur	Vijaykumar & Patil, 2004; Venkateshalu <i>et al.</i> , 2009
<b>23. Scytodidae</b>		
<i>Dictis</i> sp.	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Scytodes</i> sp.	Chikkamagaluru, Mysuru, Yadagiri	Nautiyal <i>et al.</i> , 2017; Somashekar <i>et al.</i> , 2020; Abhijith, 2021
<b>24. Sparassidae</b>		
<i>Gnathopalystes</i> sp.	Mysuru	Abhijith, 2021
<i>Heteropoda</i> sp.	Bengaluru Urban, Dakshina Kannada, Kalaburagi, Mysuru, Tumakuru	Bhat <i>et al.</i> , 2013; Deshpande & Paul, 2016; Shraddha & Chaturved, 2020; Talwar <i>et al.</i> , 2020; Abhijith, 2021; Sharma & Ramakrishna, 2021
<i>Olios</i> sp.	Bengaluru Urban, Dakshina Kannada, Shivamogga, Mysuru, Tumakuru, Yadagiri	Bhat <i>et al.</i> , 2013; Murali <i>et al.</i> , 2017; Nautiyal <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2020; Abhijith, 2021
<i>Parapalystes</i> sp.	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<b>25. Tetragnathidae</b>		
<i>Dolichognatha</i> sp.	Mysuru	Abhijith, 2021
<i>Guizygiella</i> sp.	Mysuru	Abhijith, 2021
<i>Leucauge</i> sp.	Dakshina Kannada, Shivamogga	Bhat <i>et al.</i> , 2013; Shraddha & Chaturved, 2019
<i>Tetragnatha</i> sp.	Bengaluru Urban, Dakshina	Vijaykumar & Patil, 2004; Patil <i>et al.</i> , 2006;

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	Kannada, Koppal, Mandya, Mysuru, Raichur, Shivamogga, Tumakuru, Uttara Kannada, Yadagiri	Venkateshalu <i>et al.</i> , 2009; Prasad <i>et al.</i> , 2010; Murali <i>et al.</i> , 2017; Nautiyal <i>et al.</i> , 2017; Mubeen & Basavarajappa, 2018; Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019, 2020; Sharma & Ramakrishna, 2021
<b>26. Theridiidae</b>		
<i>Achaeraena</i> sp.	Bengaluru Urban, Chikkamagaluru, Kalaburagi, Mysuru, Shivamogga, Tumakuru	Prashanthakumara & Venkateshwarlu, 2017a; Mubeen & Basavarajappa, 2018; Kokilamani <i>et al.</i> , 2019; Somashekar <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020; Sharma & Ramakrishna, 2021
<i>Anelosimus</i> sp.	Mysuru	Abhijith, 2021
<i>Argyrodes</i> sp.	Chikkamagaluru, Dakshina Kannada, Mysuru, Yadagiri	Bhat <i>et al.</i> , 2013; Nautiyal <i>et al.</i> , 2017; Somashekar <i>et al.</i> , 2020; Abhijith, 2021
<i>Ariamnes</i> sp.	Mysuru	Abhijith, 2021
<i>Chikunia</i> sp.	Mysuru, Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a; Abhijith, 2021
<i>Chrysso</i> sp.	Bengaluru Urban, Dakshina Kannada, Mysuru, Shivamogga	Bhat <i>et al.</i> , 2013; Murali <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a; Abhijith & Hill, 2021
<i>Coleosoma</i> sp.	Mysuru	Abhijith, 2021
<i>Dipoenura</i> sp.	Mysuru	Abhijith, 2021
<i>Meotipa</i> sp.	Mysuru	Abhijith, 2021
<i>Nesticodes</i> sp.	Mysuru	Abhijith, 2021
<i>Parasteatoda</i> sp.	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Kokilamani <i>et al.</i> , 2019; Abhijith, 2021 ; Padma & Sundarraj, 2021
<i>Phoroncidia</i> sp.	Mysuru	Abhijith, 2021
<i>Phycosoma</i> sp.	Mysuru	Abhijith, 2021
<i>Propostira</i> sp.	Mysuru	Abhijith, 2021
<i>Rhomphaea</i> sp.	Kalaburagi, Mysuru	Talwar <i>et al.</i> , 2020; Abhijith, 2021
<i>Steatoda</i> sp.	Chikkamagaluru, Kalaburagi, Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a; Somashekar <i>et al.</i> , 2020; Talwar <i>et al.</i> , 2020
<i>Theridion</i> sp.	Bengaluru Urban, Dakshina Kannada, Dharwad, Mandya, Shivamogga, Yadagiri	Sundararaj, 2008; Venkateshalu <i>et al.</i> , 2009; Bhat <i>et al.</i> , 2013; Phulse & Udikeri, 2014; Nautiyal <i>et al.</i> , 2017; Prashanthakumara & Venkateshwarlu, 2017a; Shraddha & Chaturved, 2019
<i>Theridula</i> sp.	Yadagiri	Nautiyal <i>et al.</i> , 2017
<i>Thwaitesia</i> sp.	Mysuru	Abhijith, 2021
<b>27. Thomisidae</b>		
<i>Amyciaea</i> sp.	Mysuru, Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a; Abhijith, 2021
<i>Angaeus</i> sp.	Mysuru	Abhijith, 2021
<i>Bomis</i> sp.	Mysuru	Abhijith, 2021
<i>Camaricus</i> sp.	Dakshina Kannada, Mysuru	Bhat <i>et al.</i> , 2013; Abhijith, 2021

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<i>Diaea</i> sp.	Mysuru	Abhijith, 2021
<i>Ebrechtella</i> sp.	Mysuru	Abhijith, 2021
<i>Henriksenia</i> sp.	Mysuru	Abhijith, 2021
<i>Indoxysticus</i> sp.	Mysuru	Abhijith, 2021
<i>Loxobates</i> sp.	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Dakshina Kannada, Kolar, Koppal, Mysuru, Tumakuru	Bhat <i>et al.</i> , 2013; Abhijith, 2021; Padma & Sundarraj, 2021
<i>Misumena</i> sp.	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kolar, Koppal, Mysuru, Tumakuru	Abhijith, 2021; Padma & Sundarraj, 2021
<i>Misumenoides</i> sp.	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a
<i>Misumenops</i> sp.	Tumakuru	Shraddha & Chaturved, 2020
<i>Monaeses</i> sp.	Mysuru	Abhijith, 2021
<i>Oxytate</i> sp.	Mysuru	Abhijith, 2021
<i>Ozyptila</i> sp.	Kalaburagi, Mysuru	Talwar <i>et al.</i> , 2020; Abhijith, 2021
<i>Runcinia</i> sp.	Bengaluru Urban, Kalaburagi, Mysuru	Sundararaj, 2008; Mubeen & Basavarajappa, 2018; Talwar <i>et al.</i> , 2020; Abhijith, 2021
<i>Stiphropus</i> sp.	Mysuru	Abhijith, 2021
<i>Strigoplus</i> sp.	Bengaluru Urban, Kalaburagi	Deshpande & Paul, 2016; Murali <i>et al.</i> , 2017
<i>Synaema</i> sp.	Mysuru	Abhijith, 2021
<i>Thomisus</i> sp.	Bengaluru Urban, Mandya, Mysuru	Sundararaj, 2008; Venkateshalu <i>et al.</i> , 2009; Abhijith, 2021; Sharma & Ramakrishna, 2021
<i>Tmarus</i> sp.	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kalaburagi, Kolar, Koppal, Mysuru, Tumakuru	Abhijith, 2021; Talwar <i>et al.</i> , 2020; Padma & Sundarraj, 2021
<i>Xysticus</i> sp.	Dakshina Kannada, Mysuru, Yadagiri	Bhat <i>et al.</i> , 2013; Nautiyal <i>et al.</i> , 2017; Abhijith, 2021
<b>28. Uloboridae</b>		
<i>Miagrammopes</i> sp.	Mysuru	Abhijith, 2021
<b>29. Uloboridae</b>		
<i>Uloborus</i> sp.	Bengaluru Urban, Chamarajanagara, Chikkaballapura, Chikkamagaluru, Kalaburagi, Kolar, Koppal, Mysuru, Shivamogga, Tumakuru	Kokilamani <i>et al.</i> , 2019; Shraddha & Chaturved, 2019; Talwar <i>et al.</i> , 2020; Abhijith, 2021; Padma & Sundarraj, 2021
<i>Zosis</i> sp.	Kalaburagi, Mysuru	Talwar <i>et al.</i> , 2020; Abhijith, 2021
<b>30. Zodariidae</b>		
<i>Mallinella</i> sp.	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a



Table 3. Seemingly misidentified species of spiders recorded in different districts of Karnataka.

Family/Species	Districts	References
<b>1. Agelenidae</b>		
<i>Agelenopsis</i> sp.	Bengaluru Urban	Sharma & Ramakrishna, 2021
<b>2. Araneidae</b>		
<i>Acacesia</i> sp.	Bengaluru Urban	Sharma & Ramakrishna, 2021
<i>Araneus viridiventris</i> Yaginuma, 1969	Mysuru	Abhijith, 2021; iNaturalist, 2022
<i>Argiope argentata</i> (Fabricus, 1775)	Belagavi, Mysuru	Pawar & Ganesh, 2016; Nijagal <i>et al.</i> , 2020
<i>Argiope keyserlingi</i> Karsch, 1878	Ballary	Tabasum <i>et al.</i> , 2018
<i>Backobourkia brouni</i> (Urquhart, 1885)	Ballary	Tabasum <i>et al.</i> , 2018
<i>Larinioides cornutus</i> (Clerck, 1757)	Ballary	Tabasum <i>et al.</i> , 2018
<i>Nephila cornuta</i> (Pallas, 1772)	Ballary	Tabasum <i>et al.</i> , 2018
<b>3. Cheiracanthiidae</b>		
<i>Cheiracanthium mildei</i> L. Koch, 1864	Ballary	Tabasum <i>et al.</i> , 2018
<b>4. Corinnidae</b>		
<i>Falconina gracilis</i> (Keyserling, 1891)	Ballary	Tabasum <i>et al.</i> , 2018
<b>5. Dictynidae</b>		
<i>Nigma puella</i> (Simon, 1870)	Mysuru	Nijagal <i>et al.</i> , 2020
<b>6. Gnaphosidae</b>		
<i>Gnaphosa sericata</i> (L. Koch, 1866)	Mysuru	Nijagal <i>et al.</i> , 2020
<b>7. Linyphiidae</b>		
<i>Linyphia triangularis</i> (Clerck, 1757)	Ballary, Mysuru	Tabasum <i>et al.</i> , 2018; Nijagal <i>et al.</i> , 2020
<i>Nerienne emphana</i> (Walckenaer, 1841)	Mysuru	Nijagal <i>et al.</i> , 2020
<b>8. Oxyopidae</b>		
<i>Oxyopes macilentus</i> (L. Koch, 1878)	Mysuru	Nijagal <i>et al.</i> , 2020
<i>Oxyopes salticus</i> Hentz, 1845	Dakshina Kannada, Mandya	Almale, 2017; Joshi & Venkateshwarlu, 2017; Parasappa <i>et al.</i> , 2017
<b>9. Pholcidae</b>		
<i>Physocyclus globosus</i> (Taczanowski, 1874)	Ballary	Tabasum <i>et al.</i> , 2018
<b>10. Salticidae</b>		
<i>Evarcha culicivora</i> Wesolowska & Jackson, 2003	Shivamogga	Prashanthakumara <i>et al.</i> , 2015
<i>Hentzia palmarum</i> (Hentz, 1832)	Ballary	Tabasum <i>et al.</i> , 2018
<i>Leptorchestes</i> sp.	Mysuru	Abhijith, 2021
<i>Menemerus semilimbatus</i> (Hahn, 1829)	Ballary	Tabasum <i>et al.</i> , 2018
<i>Phidippus audax</i> (Hentz, 1845)	Ballary	Tabasum <i>et al.</i> , 2018

Family/Species	Districts	References
<i>Phidippus otiosus</i> (Hentz, 1846)	Ballary	Tabasum <i>et al.</i> , 2018
<i>Platycryptus undatus</i> (De Geer, 1778)	Ballary	Tabasum <i>et al.</i> , 2018
<i>Plexippus phyllus</i> Karsch, 1878	Chikkamagaluru	Somashekar <i>et al.</i> , 2020
<i>Plexippus setipes</i> (Karsch, 1879)	Chikkamagaluru	Prashanthakumara & Venkateshwarlu, 2017b
<i>Servaea</i> sp.	Bengaluru Urban	Sharma & Ramakrishna, 2021
<b>11. Sparassidae</b>		
<i>Olios giganteus</i> Keyserling, 1884	Belagavi	Pawar & Ganesh, 2016
<b>12. Tetragnathidae</b>		
<i>Leucauge venusta</i> (Walckenaer, 1841)	Ballary	Tabasum <i>et al.</i> , 2018
<i>Tetragnatha gressitti</i> Okuma, 1988	Kalaburagi	Talwar <i>et al.</i> , 2020
<b>13. Theridiidae</b>		
<i>Argyroides cylindratus</i> Thorell, 1898	Mysuru	Abhijith, 2021
<i>Argyroides fasciatus</i> Thorell, 1892	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Euryopsis cyclosisa</i> Zhu & Song, 1997	Kalaburagi	Talwar <i>et al.</i> , 2020
<i>Latrodectus geometricus</i> C.L. Koch, 1841	Bengaluru Urban	iNaturalist, 2022
<i>Latrodectus mactans</i> (Fabricius, 1775)	Ballary	Tabasum <i>et al.</i> , 2018
<i>Meotipa spiniventris</i> (O. Pickard-Cambridge, 1869)	Mysuru	Abhijith, 2021
<i>Platnickina</i> sp.	Mysuru	Abhijith, 2021
<i>Steatoda nobilis</i> (Thorell, 1875)	Ballary	Tabasum <i>et al.</i> , 2018
<b>14. Thomisidae</b>		
<i>Alcimochthes</i> sp.	Mysuru	Abhijith, 2021
<i>Boliscus</i> sp.	Mysuru	Abhijith, 2021
<i>Misumessus oblongus</i> (Keyserling, 1880)	Ballary	Tabasum <i>et al.</i> , 2018
<b>15. Zodariidae</b>		
<i>Mallinella</i> sp.	Shivamogga	Prashanthakumara & Venkateshwarlu, 2017a

Table 4. Number of genera and species, species identified upto generic level and seemingly misidentified species of spiders recorded in Karnataka state of India.

Districts	Number of identified species		Number of species identified up to generic level	Number of seemingly misidentified species	
	Genera	Species	Genera	Genera	Species
1. Bagalkote	-	-	-	-	-
2. Ballary	20	22	5	16	17
3. Belgavi	36	42	-	2	2
4. Bengaluru Rural	12	14	3	-	-
5. Bengaluru Urban	83	147	33	3	3
6. Bidar	-	-	-	-	-
7. Chamarajanagara	37	50	12	-	-

8. Chikkaballapura	32	45	12	-	-
9. Chikkamagaluru	47	71	31	1	2
10. Chitradurga	-	-	-	-	-
11. Dakshina Kannada	78	105	36	1	1
12. Davanagere	-	-	-	-	-
13. Dharwad	35	40	1	-	-
14. Gadag	-	-	-	-	-
15. Hassan	9	10	-	-	-
16. Haveri	-	-	-	-	-
17. Kalaburgi	40	53	31	3	3
18. Kodagu	33	47	-	-	-
19. Kolar	31	41	13	-	-
20. Koppal	36	50	19	-	-
21. Mandya	13	20	7	1	1
22. Mysuru	90	132	115	13	13
23. Raichur	10	10	6	-	-
24. Ramanagara	6	6	-	-	-
25. Shivamogga	73	101	37	1	1
26. Tumakuru	40	62	32	-	-
27. Udupi	4	4	-	-	-
28. Uttara Kannada	36	46	1	-	-
29. Vijayanagara	1	1	-	-	-
30. Vijayapura	-	-	-	-	-
31. Yadagiri	28	49	25	-	-

Table 5. Number of species of spiders in each family recorded in different districts of Karnataka.

Family	Genera	Species		Family	Genera	Species
1. Agelenidae	2	2		21. Oxyopidae	2	12
2. Araneidae	30	79		22. Philodromidae	5	7
3. Barychelidae	1	1		23. Pholcidae	7	8
4. Cheiracanthiidae	1	5		24. Pisauridae	4	4
5. Clubionidae	2	3		25. Salticidae	41	69
6. Corinnidae	6	7		26. Scytodidae	1	4
7. Ctenidae	1	1		27. Segestriidae	1	2
8. Deinopidae	1	1		28. Selenopidae	2	3
9. Dictynidae	1	1		29. Sicariidae	1	1
10. Eresidae	1	3		30. Sparassidae	3	11
11. Filistatidae	1	1		31. Stenochilidae	1	1
12. Gnaphosidae	10	13		32. Tetragnathidae	5	23
13. Hersiliidae	1	4		33. Theraphosidae	5	11
14. Idiopidae	2	2		34. Theridiidae	13	27
15. Ischnothelidae	1	1		35. Thomisidae	18	32
16. Linyphiidae	2	3		36. Titanoecidae	1	2
17. Liocranidae	2	4		37. Trochanteriidae	1	1



18. Lycosidae	8	32		38. Uloboridae	4	5
19. Oecobiidae	2	2		39. Zodariidae	2	2
20. Oonopidae	2	3		<b>Total</b>	<b>194</b>	<b>393</b>

Table 6. Number of families, genera and species of spider fauna in different states based on published literature.

State	Families	Genera	Species	Reference
Andhra Pradesh	33	105	197	Singh & Sharma, 2022b
Arunchal Pradesh	20	56	108	Singh & Singh, 2021b
Assam	27	136	266	Singh & Singh, 2021b
Bihar	21	55	93	Singh & Singh, 2021d
Chhattisgarh	21	68	179	Singh BB & Singh, 2021
Goa	23	128	173	Singh & Singh, 2022a
Gujarat	40	169	415	Yadav <i>et al.</i> , 2017
Haryana	16	39	59	Singh & Singh, 2021c
Himachal Pradesh	22	58	90	Singh & Singh, 2021c
Jharkhand	13	27	35	Singh & Singh, 2021d
Karnataka	39	194	393	Present study
Kerala	-	-	-	Not available
Madhya Pradesh	30	136	336	Singh & Sharma, 2022a
Maharashtra	44	247	785	Singh, 2022
Manipur	25	88	142	Singh & Singh, 2021b
Meghalaya	29	119	225	Singh & Singh, 2021b
Mizoram	18	48	70	Singh & Singh, 2021b
Nagaland	5	6	7	Singh & Singh, 2021b
Odisha	42	161	264	Singh & Singh, 2022d
Panjab	19	64	109	Singh & Singh, 2021c
Rajasthan	25	90	173	Singh & Singh, 2022c
Sikkim	21	55	89	Singh & Singh, 2021b
Tamil Nadu	33	133	250	Caleb & Karthikeyani, 2020
Telangana	21	71	125	Singh & Sharma, 2022c
Tripura	16	53	79	Singh & Singh, 2021b
Uttar Pradesh	36	146	284	Singh & Singh, 2022b
Uttarakhand	45	202	373	Singh & Singh, 2022b
West Bengal	-	-	-	Not available

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## **Diversity and guild structure of spiders in the selected habitats of KFRI Field Research Center, Velupadam, Kerala, India**

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### **Abstract**

Spiders are omnipresent terrestrial predators that use a wide range of predatory strategies, occupy variety of niches, and exhibits guild-specific responses to environmental changes. Present work is an attempt to study the diversity and guild structure of spiders in the selected habitats of KFRI Field Research Center, Velupadam, Kerala, India. The study was conducted during the period of December 2021 to March 2022 in the fields of Bambusetum and Arboretum in the FRC campus. Sampling methods such as ground hand collection, aerial hand collection, vegetation beating, litter sampling, and visual search were used to collect spider samples. A total of 63 species from 53 genera in 15 families were collected from the total study area. Araneidae was the most dominant family in the total study area. Both fields had equal species richness and evenness and comparatively similar diversity indices, however the Bambusetum had slightly higher spider diversity than the Arboretum. The analysis of feeding behaviour of collected spiders revealed a total of six feeding guilds.

**Keywords:** Spider, Diversity, Bambusetum, Arboretum, Guild structure, Kerala, India.

### **Introduction**

Insects are the largest taxonomic group of animal kingdom and spiders are interesting creatures contribute to the significant portion of the arthropod diversity across the globe. Spiders belong to the large order Araneae of class Arachnida and are the members of the phylum Arthropoda. Among all other orders of creatures, they rank 7<sup>th</sup> in



total species diversity and account for 18% of all animal variety. Structural intricacy of habitat in spider populations is a linear function of spider diversity and abundance (Wise, 1993). Spiders are diverse group of predators and changes in plant ecosystem structure have a significant impact on them (Malhotra *et al.*, 2019). Spider's absolute predatory behaviour has a significant impact on the ecosystem and so regulates insect populations (Wise, 1993; Malhotra *et al.*, 2019). Spiders have a quick and fairly consistent response to changes in the environment. As a result, spiders can be utilised as ecological indicators to assess the state of the environment and to provide an early warning signal of environmental changes (Sumesh, 2021).

The term "Bambusetum" refers to a garden with a variety of bamboo plants. Bamboos are large grasses that belong to the subfamily Bambusoideae of family Poaceae. Soil erosion management, land rehabilitation, water conservation, and carbon sequestration all seem to be ecological and environmental functions of bamboo forests and the introduction of bamboo to the soil improves soil fertility, microbial activity, and soil enzyme activity (Zhihua *et al.*, 2013). Arboretum is a botanical collection made up entirely or primarily of trees of various species. An Arboretum can be simply described as a botanical garden that focuses on trees and other woody plants. Arboretums serve an important role in the conservation of endangered trees and the biodiversity they support; also help in scientific research purposes.

The focus of the current study was on determining the diversity of spiders and their guild structure in the selected habitats of KFRI-FRC campus. In general, there are only few and limited taxonomic investigations on spiders and invertebrates in man-made ecosystems such as Arboretum and Bambusetum in Kerala, India. There have been no comprehensive studies of the selected region's spider faunal diversity that have been published. The purpose of this study is to look into and compare the spider fauna in the selected habitats of study area, in order to provide a baseline for future research. The information gathered could benefit future biodiversity data base attempts for the spider species in this region.

## **Material and Methods**

The site selected for the study is the Field Research Center of Kerala Forest Research Institute (KFRI) which is situated at Velupadam, Thrissur (Fig. 1). It is located 10°25'N, 76°20'E with an area of 47.3 ha in Palappilly Range of Chalakudy Forest Division. The average altitude of study location is about 40 m above mean sea level. Study areas selected for the comparison were the Bambusetum and Arboretum within the compound of FRC campus. Bambusetum is a garden having a collection of different bamboo plants. About 63 different bamboo species are present in the Bambusetum in an area about 12 ha. Arboretum is a place where trees, herbs and shrubs are cultivated for scientific and educational motives. The Arboretum in the FRC is among the richest floristic collection in the state and covers an area about 2.5 ha. It is composed of mostly ever green and semi-evergreen trees of about 188 species that belong to 50 families and 122 genera.

The observation and collecting of spiders were made during the period of four months from December 2021 to March 2022. A total of 14 samples were collected from both the study areas. The time of collection was from 7.00 am to 10.00 am. Line transect method of sampling (100 m in length, 1 m broad, and 2 m height, reaches up from the level of the floor) was adopted in the current study to sample the spider fauna. Ground hand collecting, aerial hand collecting, vegetation beating, litter sampling, and overall visual search were the techniques used to collect the spider samples. The caught spiders

were preserved separately in bottles with 80% ethyl alcohol. Spiders were identified up to genus/species level with the help of available literature (Sebastian & Peter, 2009; World Spider Catalog, 2022; Caleb & Sankaran, 2022).

Diversity indices like Shannon-Wiener index, Simpson's diversity index, Evenness index and Species richness index were calculated using MS Office standard Excel 2013 programme. The spider guild classification was constructed habitat wise, based on the families collected during the study. Classification of guild in the current study was according to the results of Cardoso *et al.* (2011).

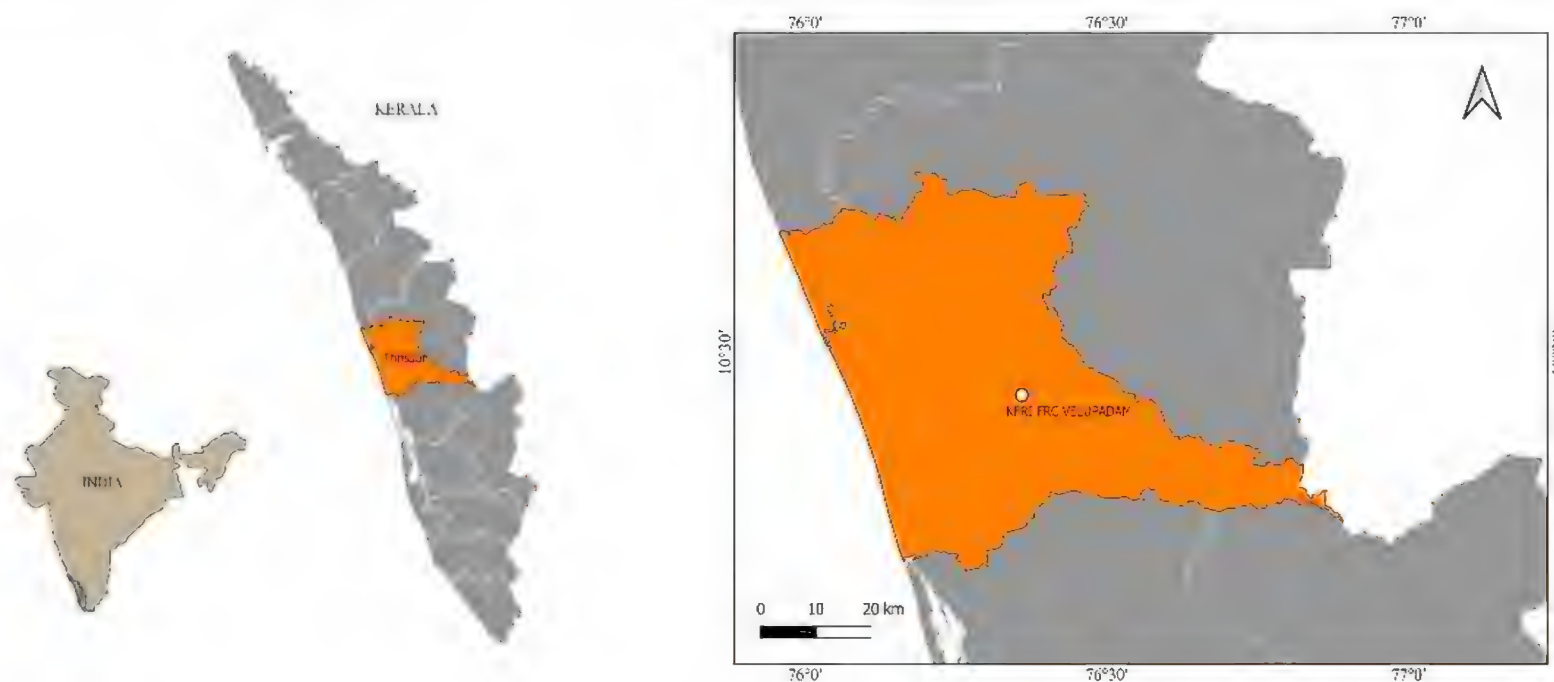


Fig. 1. Map showing the study area.

## Results

A total of 63 species from 53 genera in 15 families were collected from the total study area (Table 1). Out of the 15 families collected during the study, the family Araneidae was the dominant family with 14 species belonging to 11 genera. Family Salticidae was the second dominant family with 13 species belonging to 11 genera (Table 2). Thirty eight species of spiders belonging to 35 genera of 12 families were collected from the field of Arboretum. Out of 12 families collected during this period, Araneidae and Salticidae were the most dominant families with 9 species belonging to 8 genera (Fig. 2). Forty six species of spiders belonging to 40 genera of 13 families were collected from the field of Bambusetum. Out of 13 families collected during this period, Araneidae was the most dominant family with 12 species belonging to 9 genera (Fig. 3).

Table 1. Checklist of spiders collected from entire study area.

SI No.	Family/Genus/Species	Species Abundance
	<b>1. Araneidae</b>	
1	<i>Anepsion maritatum</i> (O. Pickard-Cambridge, 1877)	5
2	<i>Argiope pulchella</i> Thorell, 1881	4
3	<i>Argiope</i> sp.	6
4	<i>Cyclosa hexatuberculata</i> Tikader, 1982	2
5	<i>Cyclosa quinqueguttata</i> (Thorell, 1881)	3
6	<i>Cyrtarachne</i> sp.	1
7	<i>Cyrtophora cicatrosa</i> (Stoliczka, 1869)	2
8	<i>Eriovixia laglaizei</i> (Simon, 1877)	1
9	<i>Eriovixia poonaensis</i> (Tikader & Bal, 1981)	35

10	<i>Gasteracantha geminata</i> (Fabricius, 1798)	2
11	<i>Hypsosinga</i> sp.	5
12	<i>Neoscona</i> sp.	1
13	<i>Nephila pilipes</i> (Fabricius, 1793)	4
14	<i>Thelacantha brevispina</i> (Doleschall, 1857)	1
	<b>2. Clubionidae</b>	
15	<i>Clubiona</i> sp. I	4
16	<i>Clubiona</i> sp. II	3
17	<i>Clubiona</i> sp. III	8
	<b>3. Corinnidae</b>	
18	<i>Castianeria zetes</i> Simon, 1897	4
	<b>4. Lycosidae</b>	
19	<i>Hippasa agelenoides</i> (Simon, 1884)	2
20	<i>Hippasa greenalliae</i> (Blackwall, 1867)	1
21	<i>Pardosa sumatrana</i> (Thorell, 1890)	3
22	<i>Pardosa</i> sp.	1
	<b>5. Oonopidae</b>	
23	<i>Gamasomorpha</i> sp.	1
	<b>6. Oxyopidae</b>	
24	<i>Hamataliwa</i> sp.	3
25	<i>Oxyopes lineatipes</i> (C.L. Koch, 1847)	1
26	<i>Oxyopes</i> sp.	34
	<b>7. Philodromidae</b>	
27	<i>Tibellus elongatus</i> Tikader, 1960	6
	<b>8. Pholcidae</b>	
28	<i>Belisana</i> sp.	2
29	<i>Leptopholcus</i> sp.	1
30	<i>Pholcus phalangioides</i> (Fuesslin, 1775)	3
	<b>9. Salticidae</b>	
31	<i>Bavia</i> sp.	1
32	<i>Epeus triangulopalpis</i> Malamel, Nafin, Sudhikumar & Sebastian, 2019	23
33	<i>Epeus</i> sp.	3
34	<i>Hasarius adansoni</i> (Audouin, 1825)	1
35	<i>Hyllus semicupreus</i> (Simon, 1885)	25
36	<i>Indopadilla insularis</i> (Malamel, Sankaran & Sebastian, 2015)	7
37	<i>Phintella vittata</i> (C.L. Koch, 1846)	9
38	<i>Plexippus paykulli</i> (Audouin, 1825)	2
39	<i>Portia fimbriata</i> (Doleschall, 1859)	1
40	<i>Rhene flavigera</i> (C.L. Koch, 1846)	1
41	<i>Stenaelurillus lesserti</i> Reimoser, 1934	1
42	<i>Stenaelurillus</i> sp.	1
43	<i>Thiania bhamoensis</i> Thorell, 1887	5
	<b>10. Sparassidae</b>	
44	<i>Olios milleti</i> (Pocock, 1901)	4
	<b>11. Tetragnathidae</b>	
45	<i>Leucauge fastigata</i> (Simon, 1877)	7
46	<i>Tetragnatha keyserlingi</i> Simon, 1890	1
47	<i>Tylorida ventralis</i> (Thorell, 1877)	2



	<b>12. Theridiidae</b>	
48	<i>Ariamnes flagellum</i> (Doleschall, 1857)	2
49	<i>Chrysso angula</i> (Tikader, 1970)	2
50	<i>Meotipa multuma</i> Murthappa, Malamel, Prajapati, Sebastian & Venkateshwarlu, 2017	10
51	<i>Nihonhimea mundula</i> (L. Koch, 1872)	5
52	<i>Phoroncidia septemaculeata</i> O. Pickard-Cambridge, 1873	1
53	<i>Phycosoma</i> sp.	1
54	<i>Propostira quadrangulata</i> Simon, 1894	1
55	<i>Rhomphaea projiciens</i> O. Pickard-Cambridge, 1896	2
56	<i>Thwaitesia margaritifera</i> O. Pickard-Cambridge, 1881	1
	<b>13. Thomisidae</b>	
57	<i>Camaricus formosus</i> Thorell, 1887	3
58	<i>Indoxysticus minutus</i> (Tikader, 1960)	2
59	<i>Mastira</i> sp.	2
60	<i>Oxytate virens</i> (Thorell, 1891)	13
61	<i>Strigoplus netravati</i> Tikader, 1963	1
	<b>14. Trachelidae</b>	
62	<i>Utivarachna rama</i> Chami-Kranon & Likhitrakarn, 2007	1
	<b>15. Uloboridae</b>	
63	<i>Uloborus krishnae</i> Tikader, 1970	1

Table 2. Representation of genera and species in different spider families of the entire spider assemblage recorded in the study area.

FAMILY	No. of Genera	No. of Species
Araneidae	11	14
Clubionidae	1	3
Corinnidae	1	1
Lycosidae	2	4
Oonopidae	1	1
Oxyopidae	2	3
Philodromidae	1	1
Pholcidae	3	3
Salticidae	11	13
Sparassidae	1	1
Tetragnathidae	3	3
Theridiidae	9	9
Thomisidae	5	5
Trachelidae	1	1
Uloboridae	1	1
Total	<b>53</b>	<b>63</b>

Spiders collected from the selected habitats of study area were classified into six guilds based on their feeding behaviour according to the results of Cardoso *et al.* (2011): (1) Ambush hunters (Family Thomisidae), (2) Ground hunters (Corinnidae, Lycosidae, and Oonopidae), (3) Orb web weavers (Araneidae, Tetragnathidae, and Uloboridae), (4) Space web builders (Pholcidae and Theridiidae), (5) Specialists (Trachelidae), and (6) Other hunters (Clubionidae, Oxyopidae, Philodromidae, Salticidae, and Sparassidae).

Results of spider species richness among the guilds in the total study area and separately in the habitats of Arboretum and Bambusetum showed that the guild of other hunters showed the highest species richness followed by orb web weavers (Figs. 4, 6, 8). The most species abundant guild in the total study area was other hunters (49%) followed by orb web weavers (29%) (Fig. 5). In the Arboretum, the guild of orb web weavers showed highest abundance (37%) (Fig. 7); while in the Bambusetum, highest abundance was shown by the other hunters (61%) (Fig. 9). A diversity index is a single value that encompasses both species richness and evenness (Magurran, 1988). Bambusetum showed slightly higher value of diversity indices  $H'$  (3.255) & SDI (0.934) than the Arboretum  $H'$  (3.119) & SDI (0.932). Both Arboretum and Bambusetum showed same species richness of about 0.3 and also same value for evenness of about 0.9 (Table 3).

Table 3. Diversity data on spiders of selected habitats in KFRI FRC, Velupadam during the study period.

Study area	No. of species (S)	No. of individuals (N)	Species richness (d)	Shannon-Wiener index ( $H'$ )	Simpson's diversity index (SDI)	Evenness (E)
Arboretum	38	128	0.3	3.119	0.932	0.9
Bambusetum	46	163	0.3	3.255	0.934	0.9
Total study area	63	291	0.216	3.480	0.951	0.840

## Discussion

The current study is the first to document the spider fauna of the KFRI-FRC Campus in Velupadam. A total of 63 species from 53 genera in 15 families were collected from the total study area. Family Araneidae was the most dominant of the 15 families studied followed by Salticidae. According to Shabnam *et al.* (2021), study of spider diversity in different plantations of Western Ghats, Waynad showed a similar result with Araneidae being the dominant family followed by Salticidae. Similarly, Raghu & Kumar (2021) found that Araneidae was the dominant family in the study of diversity and population dynamics of spiders in agro-ecosystems and a total of 30 species under 22 genera, 15 families were observed during the study. Forty seven spider species belong to 36 genera in 14 families were identified by Dey *et al.* (2013) from an artificial mixed plantation in West Tripura, India.

The temperature ranges between 24°C to 29°C in both Arboretum and Bambusetum; but the humidity in the study area ranged from 65 to 85% in the Arboretum and 70 to 95% in the Bambusetum. Spiders often prefer certain levels of humidity and temperature, which restricts them to environments that lie in the range of their physiological tolerances (Pandit & Pai, 2017).

Spiders are versatile predators that are influenced greatly by variations in plant community structure. Spider diversity and abundance are high in heterogenous habitats. Rypstra *et al.* (1999) observed that vegetational architecture has a significant impact on the species diversity of a habitat. It is worth noting that the Bambusetum habitat had the highest number of genera and species, with 46 species belonging to 40 genera. It may be because of Bambusetum contains some natural vegetation other than bamboo plants which makes it heterogenous and the area covered by Bambusetum (about 12 ha) is higher than the Arboretum (about 2.5 ha). Bambusetum showed slightly higher value of  $H'$  (3.254) than the Arboretum (3.119). Total study area showed a value of 3.480 for  $H'$ . The intricacy of the vegetation and structure of habitat determine the distribution of

spider species, their richness, and their diversity (Warghat *et al.*, 2010). A desirable microclimate and enough web support for the spider species may be correlated to the presence of more spider species exclusively at one site (Shabnam *et al.*, 2021). In man-made ecosystems like agricultural fields, spider communities can have population densities and species abundances that match those of natural ecosystems (Mathew *et al.*, 2014). Since spider species are extremely sensitive to changes in habitat layout and microclimate, it is known that the physical organisation of environmental elements influences the habitat preferences of spider species (Green, 1999). Because a larger variety of species allows for more interactions and in turn, more system stability and better environmental circumstances, higher species diversity is a sign of a healthier and more complex ecosystem (Hill, 1973). According to Asima *et al.* (2020), during the study of spider diversity in Kerala University Campus, Thiruvananthapuram, the medicinal garden which is a man-made habitat yielded the greatest diversity of spiders.

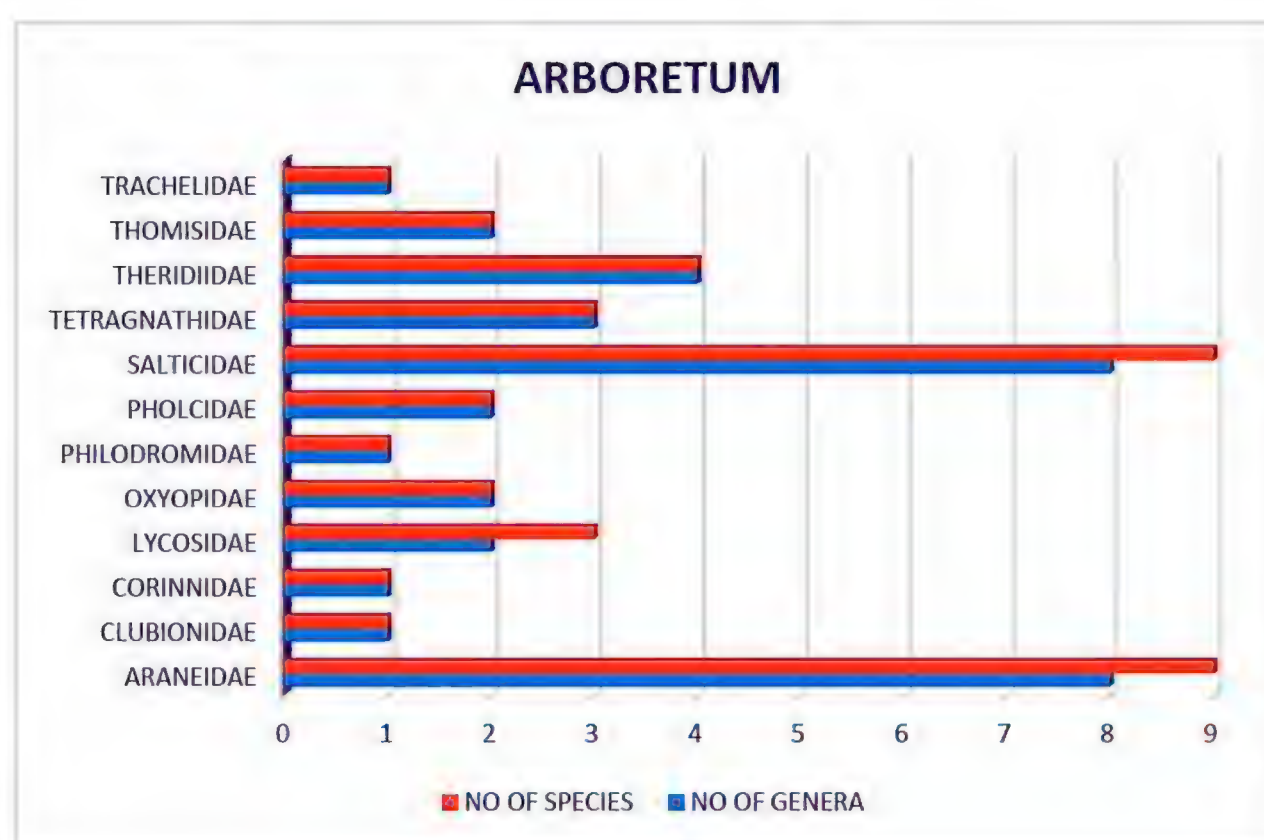


Fig. 2. Representation of genera and species in different spider families of spiders collected from Arboretum.

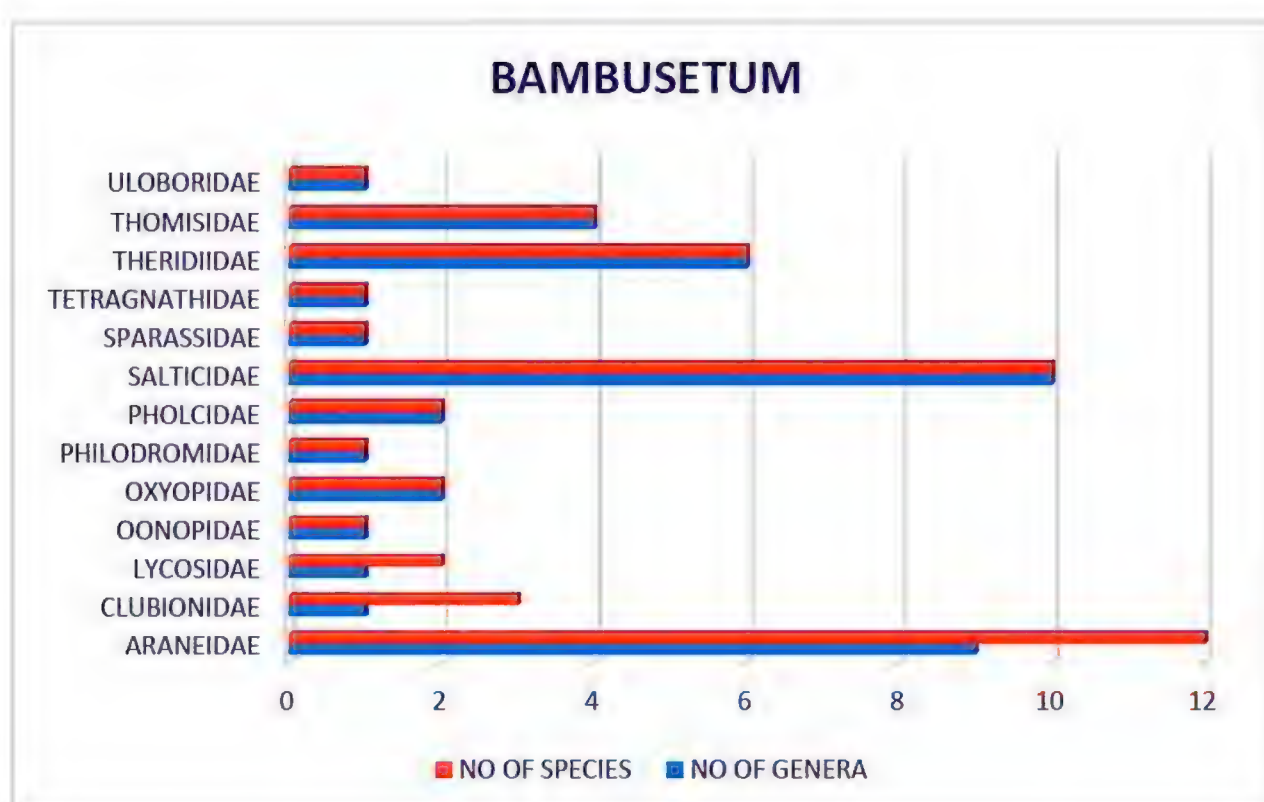


Fig. 3. Representation of genera and species in different spider families of spiders collected from Bambusetum.



Highest species richness and abundance in the total study area was shown by the other hunters followed by the orb web weavers (Figs. 3-4). Sumesh & Sudhikumar (2018) studied the spider fauna from two selected habitats of Thrissur district, Kerala and majority of species belonged to Stalkers followed by Orb web weavers. Stalkers were the dominant feeding guild with 36%, followed by orb-web builders (24.6%) according to the results of spider diversity study in different ecosystems of the Western Ghats, Wayanad by Rajeevan *et al.* (2019).



Fig. 4. Species richness of spiders in the guilds of total study area.



Fig. 5. Species abundance of spiders in the guilds of total study area.

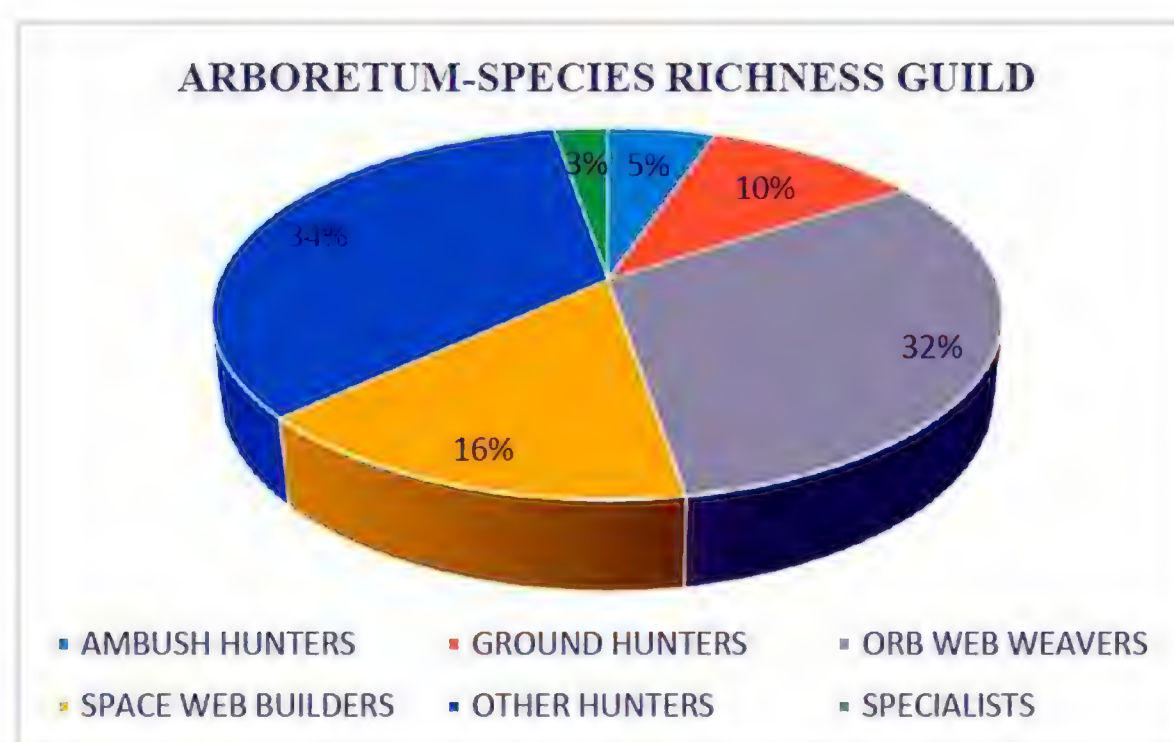


Fig. 6. Species richness of spiders in the guilds of Arboretum.

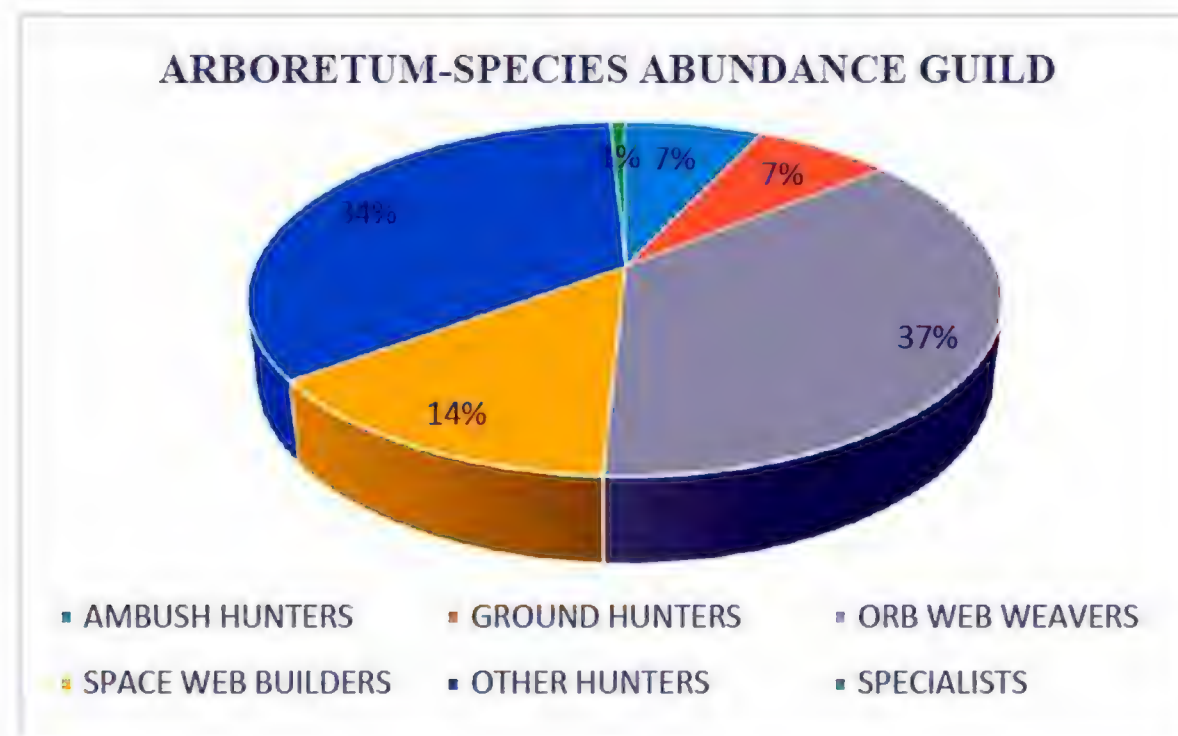


Fig. 7. Species abundance of spiders in the guilds of Arboretum.

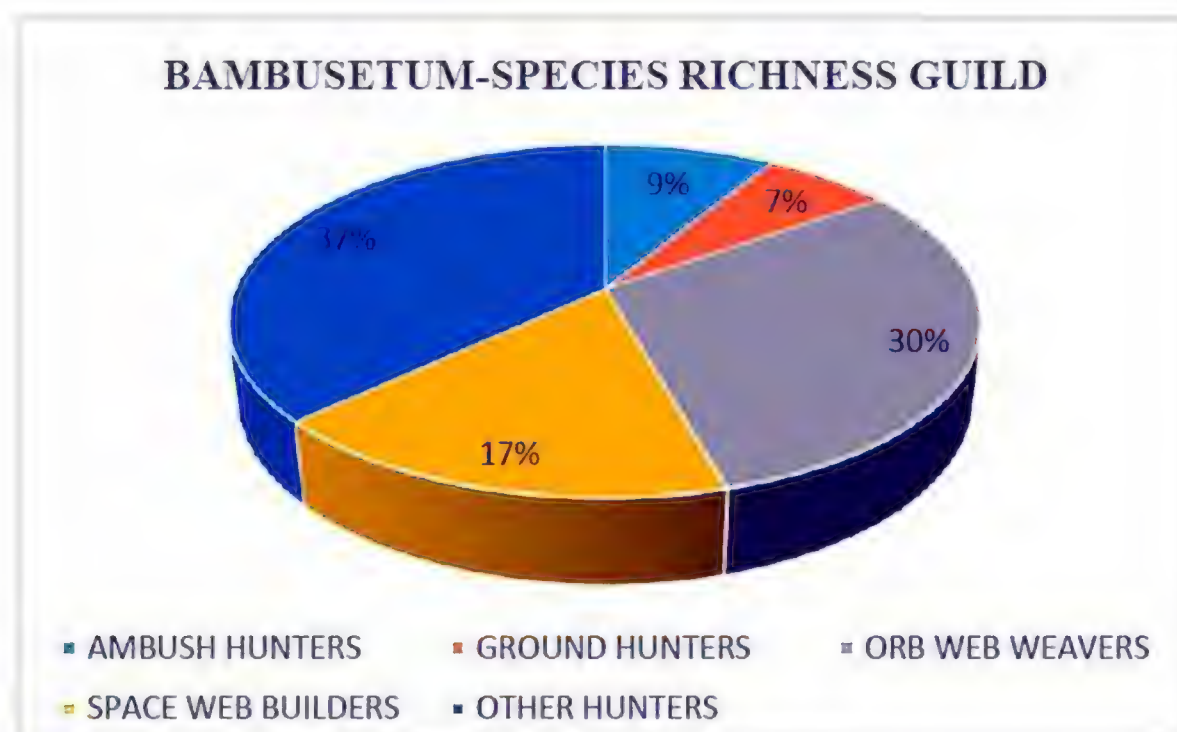


Fig. 8. Species richness of spiders in the guilds of Bambusetum.

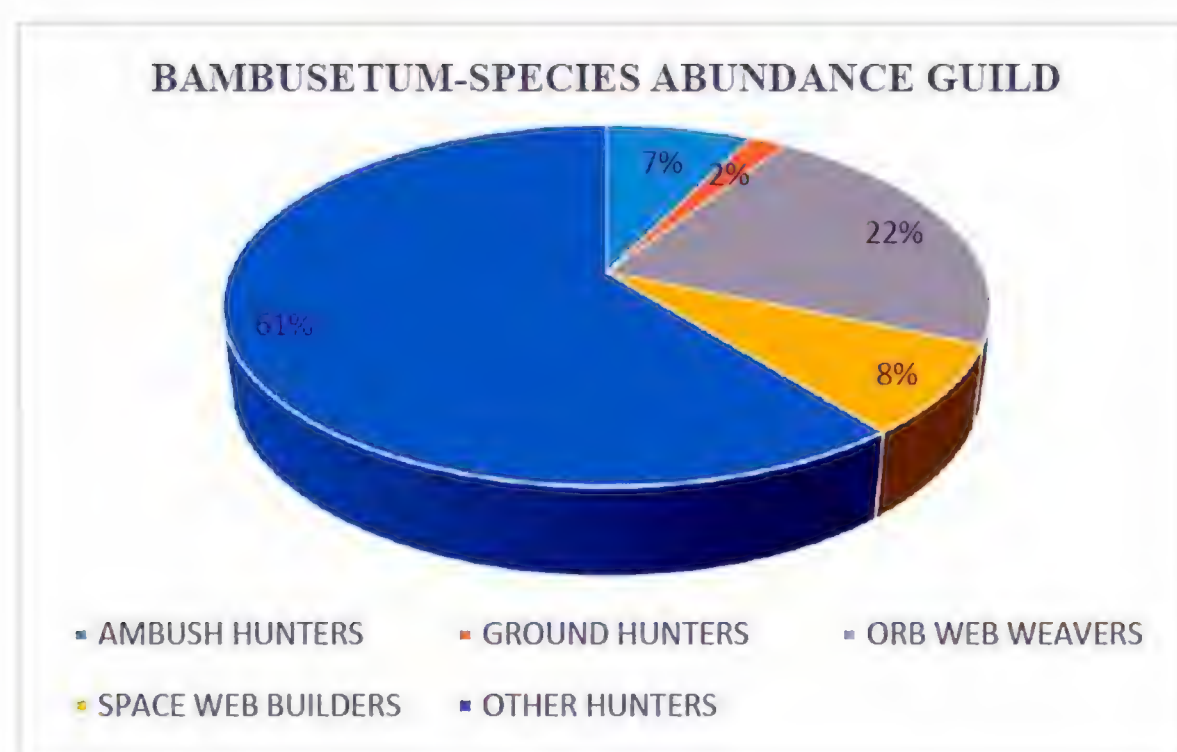


Fig. 9. Species abundance of spiders in the guilds of Bambusetum.

Results showed high similarity in the guild structure and pattern, relative abundance and richness between the fields of Arboretum and Bambusetum. This may be



due to the existence of both fields within the same study area and they are influenced by the same weather and climatic conditions. Tracking spider diversity patterns can provide valuable insight into the biodiversity of tropical environments. In light of the current global biodiversity crisis, spiders as a group could be important conservation tools as ecological indicators in quick biodiversity monitoring; there is an urgent need to provide taxonomic resources for groups from tropical environments. The study indicates a more or less diverse and varied species composition in connection to selected habitats, emphasizing the impact of different vegetation types on spider fauna as well as baseline information on spider ecology and relevance of spider species. This study intends to generate primary data on the spiders in this region, laying the foundation for more research into the subject as well as being directly included into spider-inventory-based conservation efforts.

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## **Banded garden spider, *Argiope trifasciata* (Forskål, 1775), a new record of the family Araneidae in Iraq**

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### **Abstract**

Female specimens of the banded garden spider, *Argiope trifasciata* (Forskål, 1775), are reported for the first time from Iraq, based on material collected from three provinces of southern and middle Iraq. This record represents the sixth species of the Orb-weaver spiders for the Iraqi spider fauna. The characteristic features of this species are described and figured.

**Keywords:** Araneidae, distribution, first record, taxonomy, Iraq.

### **Introduction**

The garden spider is a very common and well-known orb-weaver spider of family Araneidae, one of the largest families within order Araneae, represented by 3097 species and 184 genera (World Spider Catalog, 2022). Members of family Araneidae have a worldwide distribution and a wide range of habitats, including gardens, meadows, woodland clearings and hedgerows, and they are usually found next to buildings with outdoor lighting. The genus *Argiope* consists of 88 described species and subspecies, occur throughout the world, especially in tropical and subtropical regions (World Spider Catalog, 2022). Members of this genus can be distinguished from other genera by the

placement of the posterior median eyes closer to each other than to the lateral eyes, males are significantly smaller and duller in colour than females (Levi, 1983). The recent data by Fomichev *et al.* (2018) of the Iraq listed five orb-weaver spider species, including only one species that belongs to genus *Argiope*: *A. lobata* (Pallas, 1772), which was recorded for the first time from Sinjar district in Mosul province, northern Iraq by Reimoser (1913). Here, we add another species of orb-weaver spiders in Iraq, *Argiope trifasciata* (Forskål, 1775) bringing their total number recorded from Iraq to six.

## Material and Methods

The examined specimens were collected from orchards and gardens in Dhi Qar and Babylon provinces, Iraq (Fig. 1). The spiders were preserved in 75% alcohol, deposited in invertebrate laboratory, College of Basic Education, University of Sumer, Dhi Qar, Southern Iraq. The photos were taken by a Nikon p900s, D5600 camera and a compound microscope has been used. Photographs of the habitus and epigyne were taken in a dish filled with alcohol. Photographic report from Basra province was provided to us by Zain Alabdeen Muhammed Ali. Leg measurements are provided as total (without coxa and trochanter) (femur, patella, tibia, metatarsus, tarsus). All measurements are in mm. The map was designed by Marble (software).

## Taxonomy

Family Araneidae

Genus *Argiope*

***Argiope trifasciata*** (Forskål, 1775) (Figs. 2-6)

For the list of synonyms and references see the World Spider Catalog (2022).

**Determination.** This species is easily distinguished by its overall morphology, especially the pattern of abdominal markings for females.

**Specimens examined.** Southern IRAQ, Dhi Qar Province, AL-Nasser district, from one of the orchards in rural region, 31.534582°N 46.120739°E, 12 m a.s.l. (Fig. 1), 24 March 2022, 2♀♀, leg. A.M. Al-Khazali.

**Photographic report.** Southern IRAQ, Basra Province, AL-Basra centre, from one of the gardens in University of Basra, Bab AL-Zubair Colleges Complex, 30.520462°N 47.841525°E (Fig. 1), 7 January 2018, 2♀♀, Figs. (5-6), Photos by. Z.M. Ali.

**Description of female.** General appearance as in Figs. (2-3). Measurements: Body length 14.26; Carapace 3.31 long, 2.52 wide; abdomen 10.95 long, 6.57 wide. Leg measurements: I 23.02 (6.88, 2.16, 5.02, 7.89, 1.07), II 19.88 (5.39, 1.93, 4.64, 6.87, 1.05), III 15.33 (3.89, 1.28, 3.15, 5.94, 1.07), IV 18.62 (5.39, 1.44, 3.66, 6.32, 1.81). General colouration as in Figs. (2-3, 5-6), carapace white and covered with fine setae, with a large black spot on each side. Sternum black with a broad yellowish medial stripe, and three yellow spots on the edges, maxillae and chelicerae brown to yellowish. Abdomen is oval, dorsally yellow with numerous thin black strips, covered with many fine setae, ventrally darker with pair of longitudinal yellow lines and 4 pairs of yellow spots in the middle; spinnerets brown. Legs brown to yellowish, with darker rings. The first pair is the longest. Epigyne is very characteristic (Fig. 4).





Fig. 1. Map of Iraq showing collecting and reporting localities of *Argiope trifasciata* (Forskål, 1775) (circles).



Figs. 2-4. Female of *Argiope trifasciata* (Forskål, 1775). 2-3. Habitus. 2. dorsal view. 3. ventral view. 4. Epigyne, ventral view.

**Distribution in Iraq:** According to the current study, this species is distributed in three provinces: Dhi Qar, Basra (southern Iraq) and Babylon (central Iraq).

**Distribution in the world:** This species is widespread in the world, South, Central and North America, Africa, Portugal to Palestine/Israel, Iran, India, China, Japan, Australia (Tasmania), Pacific Is (World Spider Catalog, 2022).

**Habitat and comments:** This species was found in orchards and gardens in the rural regions of Dhi Qar and Babylon provinces, which were characterized by a dense vegetation cover represented by palm trees and some ornamental plants, in addition to seasonal field crops such as wheat and barley. It was easy and without any doubt, to diagnose the photographic report from Basra Governorate as *A. trifasciata*. According to previous literature, Di Pompeo *et al.* (2011) collected specimens of *A. trifasciata* from



lower shrubs and taller graminoid plants. In the current study, our results are in agreement with these results, as some of the females were collected from their webs among the short weed-like plants. It is worth noting that, some farmers in Alexandria district, Babylon province, reported noticing *Argiope* species in abundance, and due to the construction of their webs on their field crops, they described them as an agricultural pest, and this is expected from those who are afraid of spiders that it can be considered a pest. Although spiders, including *Argiope* species, are useful for getting rid of insect pests harmful to field crops. However, in the current study, it was observed that there were bees stuck in the webs of these spiders (Fig. 7).



Figs. 5-6. *Argiope trifasciata* (Forskål, 1775), female alive on its web.



Fig. 7. Insect prey (Bee) wrapped by silk threads and stuck in the web of *Argiope trifasciata* (Forskål, 1775).

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We wish to thank our colleague Zain Alabdeen Muhammed Ali from Basra province, for providing us with a photographic report of this species.

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***Latrodectus tredecimguttatus* (Rossi, 1790)  
(Araneae: Theridiidae) in Jordan**

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**Abstract**

*Latrodectus tredecimguttatus* (Rossi, 1790) of family Theridiidae is recorded from Jordan for the first time. Four individuals of this species were collected from different localities in 2019 and 2021 in Jordan.

**Keywords:** Araneae, Theridiidae, *Latrodectus tredecimguttatus*, Jordan.

**Introduction**

Genus *Latrodectus* Walckenaer, 1805 is one of the small genera of family Theridiidae Sundevall, 1833 which includes 2538 species in 125 genera. This genus includes 34 known species distributed in North and South America, North and South Africa, Asia, Australia and New Zealand, and considered introduced to Europe (World Spider Catalog, 2022).

Its type species is *Latrodectus tredecimguttatus* (Rossi, 1790) which is recorded from Mediterranean, Ukraine, Caucasus, Russia (Europe to South Siberia), Kazakhstan, Iran, Central Asia, China (World Spider Catalog, 2022).

Previously, only one species of genus *Latrodectus* has been recorded from Jordan, *Latrodectus pallidus* O. Pickard-Cambridge, 1872, by El-Hennawy (2006: 29): 1♀ "near Abu Nusseir, Amman (Jordan) on 1<sup>st</sup> November 1988" (El-Hennawy, 2020).



Fig. 1. *Latrodectus tredecimguttatus* (Rossi, 1790) juv.♀, alive, from Jordan, Ghor Ira, north west Amman. © Bassam Abu Afifeh.



Fig. 2. *Latrodectus tredecimguttatus* (Rossi, 1790) s♀, alive, from Jordan, near Kafrein Water Dam, south west Amman. © Mohammad Al-Saraireh.





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Figs. 3-4. *Latrodectus tredecimguttatus* (Rossi, 1790) s♀, from Jordan, near Kafrein Water Dam, south west Amman. Habitus. 3. dorsal view. 4. ventral view.



Fig. 5. *Latrodectus tredecimguttatus* (Rossi, 1790) ♂ from Egypt, after Metwally *et al.* (2015).

*Latrodectus tredecimguttatus*, the Mediterranean or European black widow, is widely distributed in the Mediterranean region. Its nearest distribution to Jordan is in Palestine and Lebanon by O. Pickard-Cambridge (1872) as follows:

"p.287: *Lathrodectus erebus*, Savigny, Arachn. d'Egypte, pl. 3. fig. 9. Adult females of this fine Spider were found beneath stones near Jericho and at Jerusalem.

p.288: *Lathrodectus argus*, Sav. Arachn. d'Egypte, p. 137, pl. 3. fig. 10. Males and females, both adult and immature, of this beautifully marked Spider were found in their snares among low plants near the earth on the plains of the Jordan and near Beirut; the



females had usually a sort of domed shelter, covered with bits of leaf and particles of earth, beneath which they sat." Because Jordan shares similar biotopes in its Mediterranean region with those recorded localities, this species was expected to be part of its fauna.

According to the description of *L. tredecimguttatus* by Nentwig *et al.* (2022): Female. Prosoma black, glossy, slightly longer than wide. Legs black, glossy (Fig. 1). Opisthosoma black, dorsally with three longitudinal series of red blotches (Figs. 2-3), sometimes these blotches are absent and the opisthosoma is entirely black, ventrally with a red blotch behind epigastric furrow (Fig. 4), opisthosoma covered with both long hairs and short bifid hairs. Male. Colouration as in female, but opisthosomal blotches whitish (Fig. 5). Body length of male 4-7 mm, and 7-15 mm in female.

*L. tredecimguttatus* is generally identified by the thirteen spots which are found on the dorsal side of its abdomen (the species name is Latin for "with thirteen spots"). These spots are usually red in colour, but may also be yellow or orange. It is otherwise similar to other species in the genus *Latrodectus* (Wikipedia, 2022).

Knowing that *Latrodectus* species have medical importance, "This species can bite humans, as also all other *Latrodectus* species in the world. Often, a bite causes significant effects, with severe and long-lasting pain in two-thirds of cases, preventing patients from sleeping in one-third of cases. ... If needed, a symptomatic medical treatment is recommended." (Nentwig *et al.*, 2022). The Mediterranean widow primarily lives in steppes and other grasslands, and can be a significant problem in areas where grain is harvested by hand. Only the female spider's bite is dangerous (Wikipedia, 2022). The LD-50 of *L. tredecimguttatus* venom has been measured as 0.59 mg/kg (Rauber, 1983), and separately again as 0.59 mg/kg (with a confidence interval of 0.33-1.06 (McCrone, 1964).

The possible clinical manifestations caused by *Latrodectus* bites, known as *latrodectism*, include mild to moderate symptoms with generalized pain and muscle cramps being the most apparent. Typically, severe pain lasting for two days, on average, is observed in half of all *Latrodectus* bites. Furthermore, local effects such as redness at the bite site and swelling are also prevalent (Isbister *et al.*, 2001), while Calista *et al.* (2004) reported confirmed case of intoxication from *Latrodectus tredecimguttatus*, the victim suffered from abdominal pain, muscular spasms, profuse sweating, paresthesia at the effected arm, but without other serious systematic symptoms.

Four individuals of this species were collected from different localities in May and June 2019 and in August 2021 in Jordan. They were living in different habitats.

Abbreviations used: ACE = Arachnid Collection of Egypt, CL = cephalothorax length, CW = cephalothorax width, TL = total length. All measurements are in millimetres (mm).

Family **Theridiidae** Sundevall, 1833

Genus ***Latrodectus*** Walckenaer, 1805

***Latrodectus tredecimguttatus*** (Rossi, 1790) (Figs. 1-11)

Taxonomic references and synonyms: see World Spider Catalog (2022).

For a description of *Latrodectus tredecimguttatus*: see Levy (1998: 90, f. 161-177).

Material examined:

Jordan, 1♀ (Figs. 6-11), Sahab, south east Amman (31°53'31.8"N, 35°59'45.4"E, elev. 955 m), 15 May 2019, leg. Mohammad Al-Saireh & Ibraheem Bani-Yaseen [ACE.2019.05.15. AR.001.JOR].



Figs. 6-11. *Latrodectus tredecimguttatus* (Rossi, 1790) ♀, from Jordan, Sahab, south east Amman. 6. habitus, dorsal view. 7-9. Epigynum, ventral view. 10-11. Spermatheca. 10.ventral view. 11. dorsal view.

Jordan, 1s♀ (Figs. 2-4), near Kafrein Water Dam, south west Amman (31°51'53.2"N, 35°40'55.4"E, elev. -120 m), 2 May 2019, leg. Mohammad Al-Saraireh & Amer Ghyada [ACE.2019.05.02.AR.001.JOR].

Jordan, 1s♀, Motanazah El-Baydah, Amman (31°56'44.1"N, 36°02'23.2"E, elev. 756 m), 1 June 2019, leg. Mohammad Al-Saraireh [ACE.2019.06.01.AR.001.JOR].

Jordan, 1 juv.♀ (Fig. 1), Ghor Ira, north west Amman (31°59'24.0"N, 35°36'46.1"E, elev. -28 m), 20 August 2021, leg. Bassam Abu Afifeh [ACE.2021.08.20.AR.001.JOR].



Measurements (in mm):

♀ TL 8.5, CL 4.0, CW 3.4

s♀ TL 11.2, 7.7

juv.♀ TL 8.2, CL 2.6, CW 2.7

Epigynum and spermathecae (Figs. 6-11). "Spermathecae lie with their axes making an angle of about 45° to each other, and ducts start looping from above the spermathecal body; ducts form four lateral coils, the smallest loop at helix tip, before it recurves inwards on itself, is relatively slender" (Levy, 1998).

### Habitats

The four studied individuals of *L. tredecimguttatus* were found in different localities and different habitats in May and June 2019 and in August 2021: a) Sahab, the main and oldest cemetery of Amman; almost deserted region (Fig. 12). b) among scattered wild vegetations near Kafrein Water Dam, south west Amman; it seems that this species prefer life near water dams and streams (Fig. 13). c) in a cultivated garden, Motanazah El-Baydah, Amman (Fig. 14). d) in arid region, Ghor Ira, north west Amman; very dry rocky region, void of natural vegetation (Fig. 15), but located 5 kilometres to the east of Karameh water dam.



Collecting locations and habitats of *Latrodectus tredecimguttatus* in Jordan:

12. Sahab, south east Amman. 13. near Kafrein Water Dam, south west Amman. [12-13. from GoogleEarth] 14. Motanazah El-Baydah, Amman. 15. Ghor Ira, north west Amman.

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## Note on *Thyene imperialis* (Rossi, 1846) (Araneae: Salticidae) in Egypt

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### Abstract

*Thyene imperialis* (Rossi, 1846) of family Salticidae is widely distributed in Egypt. Its records are discussed with photographs of a newly collected male from Cairo.

**Keywords:** Araneae, Salticidae, *Thyene imperialis*, Egypt.

### Introduction

On the 14<sup>th</sup> of August 2022, on the corridor between my home and its garden, a male jumping spider leaped in front of my feet. His jump was not normal because his left first leg was wanting. He was familiar to me, a male *Thyene imperialis* (Rossi, 1846). After catching the spider I remembered that it is the time to celebrate the 35<sup>th</sup> anniversary of *Serket* (Fig. 1). This spider came to celebrate!

#### A NEW ARACHNOLOGICAL BULLETIN FOR THE MIDDLE EAST

In August 1987, *SERKET* was launched in Egypt, taking its name from the ancient Egyptian for a scorpion. It will be published at least twice a year as a duplicated typescript. For a copy of the first issue [Contents: Notes on the biology of the spider-hunting wasp *Pseudopompilius humboldti*; A list of Egyptian spider genera; A simplified key to Egyptian scorpion species; Middle East records for Arachnida] please send £2.00 sterling or U.S. \$3.00 [in notes in these currencies *only*] to Dr Hisham K. El-Hennawy at 41, El-Manteqa El-Rabia Street, Heliopolis, CAIRO, Egypt.

Fig. 1. A note published by my late friend John Parker in the Newsletter of the British Arachnological Society (No. 50, p. 20), November 1987.



Salticidae (Jumping spiders) is the largest spider family with 6449 species included in 667 genera (World Spider Catalog, 2022) worldwide distributed. It is represented in Egypt by more than 74 species (El-Hennawy, 2017). The most widely distributed salticid species in Egypt are two, *Plexippus paykulli* (Audouin, 1825) and *Thyene imperialis* (Rossi, 1846) with more than 15 localities as follows:

*Plexippus paykulli* (Audouin, 1825) --- Abu Galoum, Alexandria, Ashtoum El-Gamil, Assiut, Badr district, Cairo, Elba Prot. (El-Shalateen, Bir El-Gahliya), El-Giza, El-Mansoura, El-Menoufeia, El-Zaranik, Ismailia, Kafr El-Sheikh, Qena, Ras El-Barr, Sadat City, southern Sinai

*Thyene imperialis* (Rossi, 1846) --- Assiut, Aswan, Badr district, Cairo, El-Fayum, El-Giza, El-Menoufeia, El-Tahrir Province, Ismailia, Nabq, New Valley, Qena, Sadat City, Sharm El-Sheikh, Siwa Oasis, Upper Egypt

Genus *Thyene* Simon, 1885 includes 45 species and 1 subspecies. Its genus type is *Thyene imperialis* (Rossi, 1846). Its male and female were described for the first time by Rossi (1846: 12) from Sicily as *Attus imperialis*.

After 30 years, O. Pickard-Cambridge (1876: 611, pl. 60, f. 17) recorded this species from Egypt and stated:

*Attus regillus*. (Plate LX. fig. 17.)

*Attus regillus*, L. Koch, Verhand. zool.-bot. Ges. Wien, p. 879.

Adult and immature males with immature females were found near Cairo and in Upper Egypt on trees and low shrubs, and subsequently in similar situations near Smyrna and Ephesus. I have also received it from Bombay. I include this Spider in the genus *Attus* on M. Simon's authority; but I conceive that the peculiar, almost circular form of the cephalothorax entitles it to generic separation from the typical *Atti*. A similar form of cephalothorax is not unfrequent in several other (as yet undescribed) exotic species.

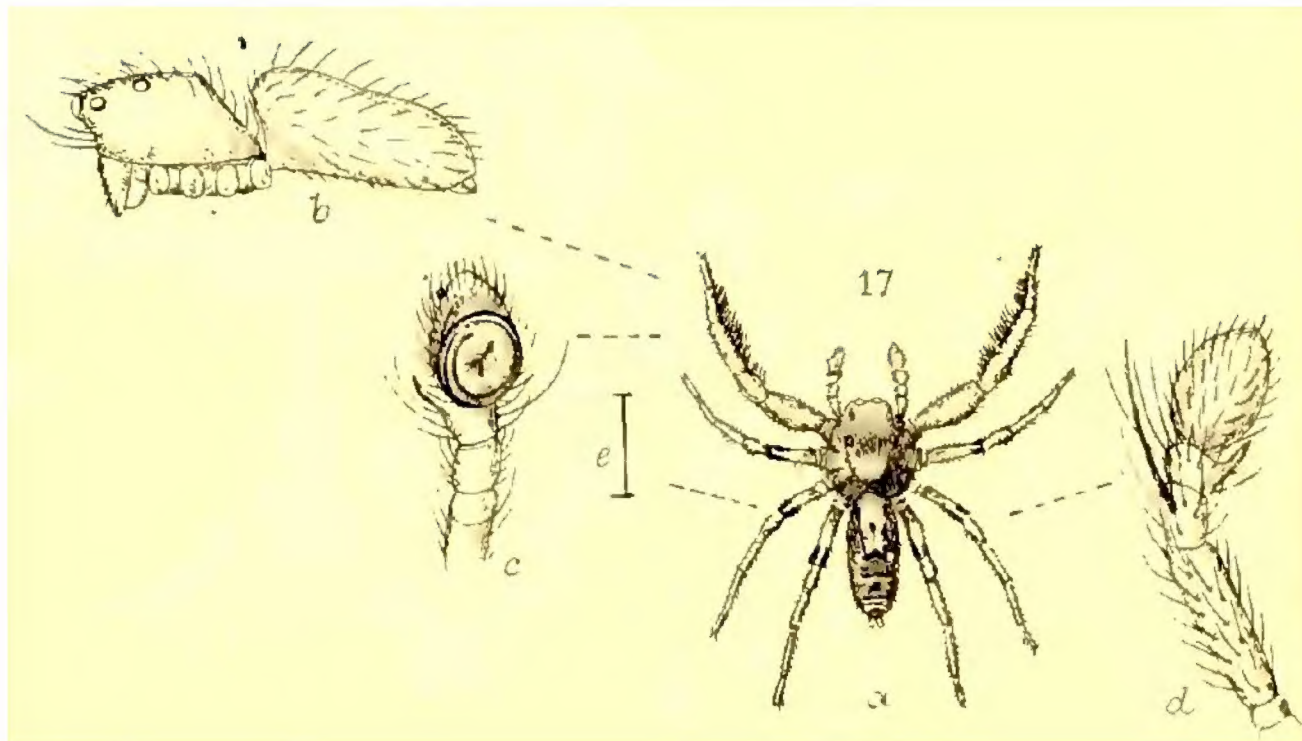


Fig. 2. 17. *Attus regillus*, L. Koch., p. 611. a, Spider, enlarged; b, ditto in profile, without legs; c, d, right palpus in two positions; e, natural length (After Pickard-Cambridge, 1876).

Nowadays, *T. imperialis* is known from several countries of three continents: Southern Europe, North and East Africa, Middle East to Central Asia and China, Pakistan, India, Indonesia (World Spider Catalog, 2022).

*T. imperialis* is known from the following localities in Egypt: Lower Egypt (Cairo, El-Giza, Badr district, El-Menoufeia, Sadat City, El-Tahrir Province, Ismailia), Upper Egypt (El-Fayum, Assiut, Qena, Aswan), Western desert (New Valley, Siwa Oasis), Sinai (Sharm El-Sheikh, Nabq) (El-Hennawy, 2017).



There are more missed localities: 1- Sohag governorate [6 districts: Akhmim, El-Baliana, El-Maragha, El-Menshah, Johyna, Sohag] (Metwally *et al.*, 2002), 2- El-Sharqia governorate [Belbis] and Beni-Suef governorate [Sids] (Sallam, 2002), 3- Kafr El-Sheikh governorate [Sakha] (Hendawy & Abul-Fadl, 2004), 4- Giza Governorate, El-Baweity, El-Wahat El-Baharia or Baharia Oasis (Sallam & Yassin, 2005).

All of these localities make *T. imperialis* the salticid species with largest distribution in Egypt.

Family **Salticidae** Blackwall, 1841

Genus *Thyene* Simon, 1885

*Thyene imperialis* (Rossi, 1846) (Figs. 3-9)

Taxonomic references and synonyms: see World Spider Catalog (2022).



Figs. 3-9. *Thyene imperialis* (Rossi, 1846) ♂, from Cairo, Egypt. 3-6. Habitus. 3, 5. dorsal view. 4. ventral view. 6. frontal view. 7-9. Palp. 7. prolateral view. 8. ventral view. 9. retrolateral view.



Notes.

1- It is known that the colourful and usually iridescent patterns on the upper side of the salticid spider body are changed after preservation in alcohol. See difference between figs. 3 & 5. The first one was a few minutes after immersion in alcohol; the spider was still alive. The second was taken after two weeks in alcohol.

2- The palpal organ is characteristic and very similar to the drawings of Metzner (1999: f. 97b-c) of Greek specimen.

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